UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 10,568,533 B2
APPLICATION NO. : 16/143959
DATED : February 25, 2020
INVENTOR(S) : Christopher D. Soli et al.

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

In the Drawings

Sheet 46, FIG. 8A, delete the reference numeral "810" and insert the reference numeral -- 811 --, therefor.

In the Specification

In Column 42, Line 5, delete "first page 616" and insert -- second page 616 --, therefor.

In Column 54, Line 28, delete "the second electronic device (e.g., 600b)" and insert -- the second electronic device (e.g., 600B) --, therefor.

In Column 54, Line 35, delete "the second electronic device (e.g., 600b)" and insert -- the second electronic device (e.g., 600B) --, therefor.

In Column 61, Line 3, delete "a notification message 810" and insert -- a notification message 811 --, therefor.

In Column 61, Line 8, delete "a notification message 810" and insert -- a notification message 811 --, therefor.

In Column 61, Lines 31-32, delete "a notification message 810" and insert -- a notification message 811 --, therefor.

In Column 61, Lines 41-42, delete "a notification message 810" and insert -- a notification message 811 --, therefor.

In Column 65, Lines 36-37, delete "forming animation forming animation 808" and insert -- forming animation 808 --, therefor.

Signed and Sealed this
Eleventh Day of July, 2023

Katherine Kelly Vidal

Katherine Kelly Vidal
Director of the United States Patent and Trademark Office

In Column 72, Lines 33-34, delete "a notification message 810" and insert -- a notification message 811 --, therefor.

In the Claims

Claim 7, cancel the text beginning with "7. The first electronic device of claim" in Column 100, Line 55, and ending in "the graphical animation." in Line 64, and insert the following claim:
-- 7. The first electronic device of claim 6, wherein the plurality of moving objects of the graphical animation transitions from the first shape to a second shape different from the first shape as the display transitions from the first user interface to the second user interface. --.

Claim 8, cancel the text beginning with "8. The first electronic device of claim" in Column 100, Line 65, and ending in "the second user interface." in Column 101, Line 2, and insert the following claim:
-- 8. The first electronic device of claim 7, wherein the one or more programs further include instructions for:

while displaying the second user interface and recording the biometric information, displaying, within the graphical animation that is in the second shape, a visual representation of the recorded biometric information, wherein the recorded biometric information is filtered and scaled such that the visual representation of the recorded biometric information can be displayed within the graphical animation. --.

In Column 101, Line 3, Claim 9, delete "The first electronic device of claim 8" and insert -- The first electronic device of claim 7 --, therefor.

In Column 101, Lines 13-14, Claim 10, delete "a timer indicating the amount of time" and insert -- a timer indicating an amount of time --, therefor.

In Column 101, Line 26, Claim 12, delete "the second criteria is met" and insert -- the second criteria are met --, therefor.

In Column 101, Line 30, Claim 13, delete "The first electronic device of claim 11" and insert -- The first electronic device of claim 12 --, therefor.

In Column 101, Line 31, Claim 13, delete "the second criteria is met" and insert -- the second criteria are met --, therefor.

In Column 101, Line 37, Claim 14, delete "the second criteria is met" and insert -- the second criteria are met --, therefor.

In Column 101, Line 43, Claim 15, delete "the second criteria is met" and insert -- the second criteria are met --, therefor.

In Column 102, Line 6, Claim 19, delete "the second criteria being no longer met" and insert -- the first criteria being no longer met --, therefor.

Claim 26, cancel the text beginning with "26. The non-transitory computer-readable storage medium of claim" in Column 103, Line 7, and ending in "the graphical animation." in Line 17, and insert the following claim:
-- 26. The non-transitory computer-readable storage medium of claim 25, wherein the plurality of moving objects of the graphical animation transitions from the first shape to a second shape different from the first shape as the display transitions from the first user interface to the second user interface. --.

Claim 27, cancel the text beginning with "27. The non-transitory computer-readable storage medium of claim" in Column 103, Line 18, and ending in "the second user interface." in Line 23, and insert the following claim:
-- 27. The non-transitory computer-readable storage medium of claim 26, wherein the one or more programs further include instructions for:

while displaying the second user interface and recording the biometric information, displaying, within the graphical animation that is in the second shape, a visual representation of the recorded biometric information, wherein the recorded biometric information is filtered and scaled such that the visual representation of the recorded biometric information can be displayed within the graphical animation. --.

In Column 103, Line 24, Claim 28, delete "The non-transitory computer-readable storage medium of claim 27" and insert -- The non-transitory computer-readable storage medium of claim 26 --, therefor.

In Column 103, Line 36, Claim 29, delete "indicating the amount of time" and insert -- indicating an amount of time --, therefor.

In Column 103, Line 50, Claim 31, delete "the second criteria is met" and insert -- the second criteria are met --, therefor.

In Column 103, Line 55, Claim 32, delete "medium of claim 30" and insert -- medium of claim 31 --, therefor.

In Column 103, Line 56, Claim 32, delete "the second criteria is met" and insert -- the second criteria are met --, therefor.

In Column 103, Line 63, Claim 33, delete "the second criteria is met" and insert -- the second criteria are met --, therefor.

In Column 104, Line 3, Claim 34, delete "the second criteria is met" and insert -- the second criteria are met --, therefor.

In Column 104, Line 37, Claim 38, delete "the second criteria" and insert -- the first criteria --, therefor.

Claim 45, cancel the text beginning with "45. The method of claim" in Column 105, Line 33, and ending in "the graphical animation." in Line 42, and insert the following claim:
-- 45. The method of claim 44, wherein the plurality of moving objects of the graphical animation transitions from the first shape to a second shape different from the first shape as the display transitions from the first user interface to the second user interface. --.

Claim 46, cancel the text beginning with "46. The method of claim" in Column 105, Line 43, and ending in "the second user interface." in Line 47, and insert the following claim:
-- 46. The method of claim 45, further comprising:

while displaying the second user interface and recording the biometric information, displaying, within the graphical animation that is in the second shape, a visual representation of the recorded biometric information, wherein the recorded biometric information is filtered and scaled such that the visual representation of the recorded biometric information can be displayed within the graphical animation. --.

In Column 105, Line 48, Claim 47, delete "The method of claim 46" and insert -- The method of claim 45 --, therefor.

In Column 105, Line 57, Claim 48, delete "the amount of time" and insert -- an amount of time --, therefor.

In Column 106, Line 9, Claim 50, delete "the second criteria is met" and insert -- the second criteria are met --, therefor.

In Column 106, Line 13, Claim 51, delete "The method of claim 49" and insert -- The method of claim 50 --, therefor.

In Column 106, Line 14, Claim 51, delete "the second criteria is met" and insert -- the second criteria are met --, therefor.

In Column 106, Line 19, Claim 52, delete "the second criteria is met" and insert -- the second criteria are met --, therefor.

In Column 106, Line 25, Claim 53, delete "the second criteria is met" and insert -- the second criteria are met --, therefor.

In Column 106, Line 52, Claim 57, delete "the second criteria" and insert -- the first criteria --, therefor.

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/143,959	09/27/2018	Christopher D. SOLI	P38213US2/77770000489102	6224

150004 7590 06/26/2023

DLA Piper LLP (US) - Apple
555 Mission Street
Suite 2400
San Francisco, CA 94105

EXAMINER	
LAU, MICHAEL J	

ART UNIT	PAPER NUMBER
3792	

NOTIFICATION DATE	DELIVERY MODE
06/26/2023	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PatentDocketing@us.dlapiper.com

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Patent No.: 10568533
Issue Date: 02/25/2020
Appl. No.: 16/143,959
Filed: 09/27/2018

PART (A) RESPONSE FOR CERTIFICATES OF CORRECTION

This is a decision on the Certificate of Correction request filed 16 June 2023.

The request for issuance of Certificate of Correction for the above-identified correction(s) under the provisions of 37 CFR 1.322 and/or 1.323 is hereby:

(Check one)
☑ Approved ☐ Approved in Part ☐ Denied

Comments: These corrections fix typographical errors and claim dependency issues with respect to claims 7-9, 26-28, and 45-47. These corrections do not change claim scope .

PART (B) PETITION UNDER 37 CFR 1.324 OR 37 CFR 1.48

☐ This is a decision on the petition filed ____ to correct inventorship under 37 CFR 1.324.

☐ This is a decision on the request under 37 CFR 1.48, petition filed ____. In view of the fact that the patent has already issued, the request under 37 CFR 1.48 has been treated as a petition to correct inventorship under 37 CFR 1.324.

The petition is hereby: ☐ Granted ☐ Dismissed

Comment: ____

The patented filed is being forwarded to Certificate of Corrections Branch for issuance of a certificate naming only the actual inventor or inventors.

/CARL H LAYNO/
Supervisory Patent Examiner, Art Unit 3792
Technology Center 3700
Phone: (571)272-4949

Electronic Patent Application Fee Transmittal

Application Number:	16143959
Filing Date:	27-Sep-2018
Title of Invention:	USER INTERFACES FOR HEALTH MONITORING
First Named Inventor/Applicant Name:	Christopher D. SOLI
Filer:	Randy Omid/Carina Morales
Attorney Docket Number:	P38213US2/77770000489102

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
CERTIFICATE OF CORRECTION	1811	1	160	160

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**160**

Electronic Acknowledgement Receipt

EFS ID:	48168856
Application Number:	16143959
International Application Number:	
Confirmation Number:	6224
Title of Invention:	USER INTERFACES FOR HEALTH MONITORING
First Named Inventor/Applicant Name:	Christopher D. SOLI
Customer Number:	150004
Filer:	Randy Omid/Carina Morales
Filer Authorized By:	Randy Omid
Attorney Docket Number:	P38213US2/77770000489102
Receipt Date:	16-JUN-2023
Filing Date:	27-SEP-2018
Time Stamp:	19:43:04
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$160
RAM confirmation Number	E20236FJ43557100
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
9 of 1413

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Certificate of Correction	P38213US2_COC.pdf	158345 eb9203129ceb4642ca74f9486d00246288b159a0	no	6
Warnings:					
Information:					
2	Request for Certificate of Correction	P38213US2_ReqCoC.pdf	114975 43902845ec151f8da5724487107 56d91086c9772	no	3
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	37830 04d90587722789d754f7e111790c9009d235837e	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	311150		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

I hereby certify that this paper is being transmitted via the Office electronic filing system in accordance with 37 CFR § 1.6(a)(4).

Dated: June 16, 2023
Electronic Signature for Carina Morales: /Carina Morales/

Docket No.: P38213US2/77770000489102
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Letters Patent of:
Christopher D. SOLI et al.

Patent No.: 10,568,533

Issued: February 25, 2020

For: USER INTERFACES FOR HEALTH MONITORING

REQUEST FOR CERTIFICATE OF CORRECTION
PURSUANT TO 37 C.F.R. § 1.323

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

This submission is being made pursuant to the Response to the Request for Certificate of Correction, mailed December 27, 2022 (hereafter "the Response"). The Response indicated that the Certificate of Correction filed November 30, 2022 (hereinafter "the prior CoC"), was approved in part. The Response further states "Incorrect Claim dependency for claim 46.. request is higher than should be." Patentee believes that this comment is intended to indicate that the correction of claim 45 was rejected because the dependency of claim 45 was changed to depend from claim 46, which follows claim 45.

Accordingly, Patentee submits the accompanying Certificate of Correction, which reorders claims 45 and 46 to remedy the claim numbering error noted in the Response. Because claims 45 and 46 are reordered in the accompanying Certificate of Correction, the dependency of claim 47 has been corrected to depend from claim 45, which was previously claim 46. Patentee notes that although similar numbering issues were present in the prior CoC for claims 7 and 8 and

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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claims 26 and 27, the corrections to claims 7 and 26 were not indicated to be rejected in the Response. However, to maintain consistency, the accompanying Certificate of Correction reorders claims 7 and 8, and claims 26 and 27, in a manner similar to claims 45 and 46, and corrects the dependencies of claims 9 and 28 in a manner similar to claim 47. Because the Response is unclear as to which aspects of the prior CoC were approved and which were rejected, the accompanying Certificate of Correction also retains the remaining corrections that were previously indicated in the prior CoC.

Patentee respectfully submits that the errors sought to be corrected as noted on the accompanying Certificate of Correction are inadvertent typographical and clerical errors, the correction of which do not involve new matter or require reexamination. Patentee respectfully solicits the granting of the requested Certificate of Correction.

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
12 of 1413

Payment via EFS-Web in the amount of $160.00 covering the fee set forth in 37 C.F.R. § 1.20(a) is accompanying this request. The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our **Deposit Account No. 604929**, under Order No. **P38213US2/77770000489102**.

Dated: June 16, 2023

Respectfully submitted,

Electronic signature: /Taylor S. Dennington/
Taylor S. Dennington
Registration No.: 66,956
DLA Piper LLP (US)
555 Mission Street
Suite 2400
San Francisco, CA 94105-2933
P +1 (303) 634-4345

PTO/SB/44 (09-07)
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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 10,568,533

APPLICATION NO.: 16/143,959

ISSUE DATE : 02-25-2020

INVENTOR(S) : Christopher D. SOLI et al.

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

In the drawings, Sheet 46, FIG. 8A, delete the reference numeral "810" and insert the reference numeral - - 811 - -, therefor.

In Column 42, Line 5, delete "first page 616" and insert - - second page 616 - -, therefor.

In Column 54, Line 28, delete "the second electronic device (e.g., 600b)" and insert - - the second electronic device (e.g., 600B) - -,therefor.

In Column 54, Line 35, delete "the second electronic device (e.g., 600b)" and insert - - the second electronic device (e.g., 600B) - -, therefor.

In Column 61, Line 3, delete "a notification message 810" and insert - - a notification message 811 - -, therefor.

In Column 61, Line 8, delete "a notification message 810" and insert - - a notification message 811 - -, therefor.

In Column 61, Lines 31-32, delete "a notification message 810" and insert - - a notification message 811 - -, therefor.

In Column 61, Lines 41-42, delete "a notification message 810" and insert - - a notification message 811 - -, therefor.

In Column 65, Lines 36-37, delete "forming animation forming animation 808" and insert - - forming animation 808 - -, therefor.

In Column 72, Lines 33-34, delete "a notification message 810" and insert - - a notification message 811 - -, therefor.

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

Taylor S. Dennington, Registration No.: 66,956
DLA Piper LLP (US)
555 Mission Street, Suite 2400, San Francisco, CA 94105-2933

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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ISSUE DATE : 02-25-2020

INVENTOR(S) : Christopher D. SOLI et al.

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

In the Claims, Claim 7, cancel the text beginning with "7. The first electronic device of claim" in Column 100, Line 55 and ending in "the graphical animation." in Column 100, Line 64 and insert the following claim:

7. The first electronic device of claim 6, wherein the plurality of moving objects of the graphical animation transitions from the first shape to a second shape different from the first shape as the display transitions from the first user interface to the second user interface.

In the Claims, Claim 8, cancel the text beginning with "8. The first electronic device of claim" in Column 100, Line 65 and ending in "the second user interface." in Column 101, Line 2 and insert the following claim:

8. The first electronic device of claim 7, wherein the one or more programs further include instructions for:
while displaying the second user interface and recording the biometric information, displaying, within the graphical animation that is in the second shape, a visual representation of the recorded biometric information, wherein the recorded biometric information is filtered and scaled such that the visual representation of the recorded biometric information can be displayed within the graphical animation.

In Column 101, Line 3, Claim 9, delete "The first electronic device of claim 8" and insert - - The first electronic device of claim 7 - -, therefor.

In Column 101, Lines 13-14, Claim 10, delete "a timer indicating the amount of time" and insert - - a timer indicating an amount of time - -, therefor.

In Column 101, Line 26, Claim 12, delete "the second criteria is met" and insert - - the second criteria are met - -, therefor.

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In Column 101, Line 31, Claim 13, delete "the second criteria is met" and insert - - the second criteria are met - -, therefor.

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27. The non-transitory computer-readable storage medium of claim 26, wherein the one or more programs further include instructions for:

while displaying the second user interface and recording the biometric information, displaying, within the graphical animation that is in the second shape, a visual representation of the recorded biometric information, wherein the recorded biometric information is filtered and scaled such that the visual representation of the recorded biometric information can be displayed within the graphical animation.

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In Column 103, Line 36, Claim 29, delete "indicating the amount of time" and insert - - indicating an amount of time- -, therefor.

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DLA Piper LLP (US)
555 Mission Street, Suite 2400, San Francisco, CA 94105-2933

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/44 (09-07)
Approved for use through 03/31/2023. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 10,568,533

APPLICATION NO.: 16/143,959

ISSUE DATE : 02-25-2020

INVENTOR(S) : Christopher D. SOLI et al.

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

In Column 104, Line 3, Claim 34, delete "the second criteria is met" and insert - - the second criteria are met - - , therefor.

In Column 104, Line 37, Claim 38, delete " the second criteria" and insert - - the first criteria - - , therefor.

In the Claims, Claim 45, cancel the text beginning with "45. The method of claim" in Column 105, Line 33 and ending in "the graphical animation." in Column 105, Line 42 and insert the following claim:

45. The method of claim 44, wherein the plurality of moving objects of the graphical animation transitions from the first shape to a second shape different from the first shape as the display transitions from the first user interface to the second user interface.

In the Claims, Claim 46, cancel the text beginning with "46. The method of claim" in Column 105, Line 43 and ending in "the second user interface." in Column 105, Line 47 and insert the following claim:

46. The method of claim 45, further comprising:
while displaying the second user interface and recording the biometric information, displaying, within the graphical animation that is in the second shape, a visual representation of the recorded biometric information, wherein the recorded biometric information is filtered and scaled such that the visual representation of the recorded biometric information can be displayed within the graphical animation.

In Column 105, Line 48, Claim 47, delete "The method of claim 46" and insert - - The method of claim 45 - -, therefor.

In Column 105, Line 57, Claim 48, delete "the amount of time" and insert - - an amount of time- -, therefor.

In Column 106, Line 9, Claim 50, delete "the second criteria is met" and insert - - the second criteria are met - -, therefor.

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

Taylor S. Dennington, Registration No.: 66,956
DLA Piper LLP (US)
555 Mission Street, Suite 2400, San Francisco, CA 94105-2933

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PTO/SB/44 (09-07)
Approved for use through 03/31/2023. OMB 0651-0033
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(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 10,568,533

APPLICATION NO.: 16/143,959

ISSUE DATE : 02-25-2020

INVENTOR(S) : Christopher D. SOLI et al.

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

In Column 106, Line 13, Claim 51, delete "The method of claim 49" and insert - - The method of claim 50 - -, therefor.

In Column 106, Line 14, Claim 51, delete "the second criteria is met" and insert - - the second criteria are met - -, therefor.

In Column 106, Line 19, Claim 52, delete "the second criteria is met" and insert - - the second criteria are met - -, therefor.

In Column 106, Line 25, Claim 53, delete "the second criteria is met" and insert - - the second criteria are met - -, therefor.

In Column 106, Line 52, Claim 57, delete " the second criteria" and insert - - the first criteria - - , therefor.

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

Taylor S. Dennington, Registration No.: 66,956
DLA Piper LLP (US)
555 Mission Street, Suite 2400, San Francisco, CA 94105-2933

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/143,959	09/27/2018	Christopher D. SOLI	P38213US2/77770000489102	6224

150004 7590 01/06/2023

DENTONS US LLP - Apple
4655 Executive Dr
Suite 700
San Diego, CA 92121

EXAMINER
LAU, MICHAEL J

ART UNIT	PAPER NUMBER
3792	

NOTIFICATION DATE	DELIVERY MODE
01/06/2023	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

dentons_PAIR@firsttofile.com
patent.docket@dentons.com
patents.us@dentons.com

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Patent No.: 10568533
Issue Date: 02/25/2020
Appl. No.: 16/143,959
Filed: 09/27/2018

PART (A) RESPONSE FOR CERTIFICATES OF CORRECTION

This is a decision on the Certificate of Correction request filed 30 November 2022.

The request for issuance of Certificate of Correction for the above-identified correction(s) under the provisions of 37 CFR 1.322 and/or 1.323 is hereby:

(Check one)
☐ Approved ☑ Approved in Part ☐ Denied

Comments: The addition of inventors under the 1.324 request (below) has been granted but the claim dependency issue of claim 46 still needs correction.

PART (B) PETITION UNDER 37 CFR 1.324 OR 37 CFR 1.48

☑ This is a decision on the petition filed 30 November 2022 to correct inventorship under 37 CFR 1.324.

☐ This is a decision on the request under 37 CFR 1.48, petition filed ____. In view of the fact that the patent has already issued, the request under 37 CFR 1.48 has been treated as a petition to correct inventorship under 37 CFR 1.324.

The petition is hereby: ☑ Granted ☐ Dismissed

Comment: See Continuation Sheet

The patented filed is being forwarded to Certificate of Corrections Branch for issuance of a certificate naming only the actual inventor or inventors.

/CARL H LAYNO/
Supervisory Patent Examiner, Art Unit 3792
Technology Center 3700
Phone: (571)272-4949

Continuation of PART (B): Inventors Heather E. Daniel and Stephen O. Lemay have been added to the Patent.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/143,959	09/27/2018	Christopher D. SOLI	P38213US2/77770000489102	6224

150004 7590 12/27/2022

DENTONS US LLP - Apple
4655 Executive Dr
Suite 700
San Diego, CA 92121

EXAMINER	
LAU, MICHAEL J	

ART UNIT	PAPER NUMBER
3792	

NOTIFICATION DATE	DELIVERY MODE
12/27/2022	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

dentons_PAIR@firsttofile.com
patent.docket@dentons.com
patents.us@dentons.com

Response to the Request for Certificate of Correction	Patent No. 10568533	Applicant(s) SOLI et al.
	Issue Date 02/25/2020	Docket No. P38213US2/77770000489102

This is in response to the request for a Certificate of Correction filed 30 November 2022

☑ **Request Approval- In- Part** - Consideration has been given to your request for the issuance of a Certificate of Correction under the provisions of 37 CFR 1.322 and/or 37 CFR 1.323. The Request is improper and approved in part for the reason(s) below:

☐ **Supersede/Vacate** - The Certificate of Correction issued in error, in that error(s) was made in identifying the patent number and/or keying text/corrections. See Other Comments below:

1. ☐ Assignees' names and addresses (assignment data) printed in a patent, are based solely on information supplied in the appropriate space for identifying the assignment data on the Issue Fee Transmittal Form (PTOL-85b). Any request for a patent to be corrected to state the name of the assignee, must state that the assignment was submitted for recordation as set forth in in 37 CFR 3.11 before issuance of the patent. Petition under 3.81 is to be filed for consideration of correction to assignee. The petition fee set forth in 37 CFR 1.17(i)(1) (currently $140, $70, $35 for large, small and micro entities, respectively.

2. ☐ The alleged error in _____, is in fact an Amendment and/or Change made by the examiner and considered to be in accordance with the permissible amendments enumerated in the Manual of Patent Examining Procedure (MPEP) Section 1302.04. Applicant did not file objection or amendment under 37 CFR 1.312 prior to payment of the issue fee.

3. ☐ A petition under CFR 1.182 is required to correct the alleged errors in spelling or order of inventor's names, since inventor's names are printed solely in accordance with the type-written names, and in the order of the type-written names on the Application Data Sheet (ADS). The required fee currently under rule 1.17(f) (small entity $200, large entity $400, micro entity fee $100).

4. ☐ With respect to the alleged error in changing the inventor name on the patent due to clerical error in ADS/OATH of related patents. The inventors name is printed in accordance with the OATH/ADS submitted at the time of filing the application. However, your attention is directed to C.F.R. 1.324, wherein a request is being made to change, add or delete inventor(s), after issuance of the patent.

5. ☐ With respect to the alleged error in _____, comparison of the printed patent with the corresponding location in the application file reveals that there is no discrepancy.

6. ☐ With respect to 37 CFR 1.72, the title should be brief but technically accurate and descriptive and should contain fewer than 500 characters. Inasmuch as the words new, improved, improvement of, and improvement in are not considered as part of the title of an invention, these words should not be included at the beginning of the title of the invention and will be deleted when the Office enters the title into the Offices computer records, and when any patent issues.

7. ☐ The fee for correction under 37 CFR 1.323 is set forth in 37 CFR 1.20(a). ☐Partial fee ☐No fee was received with your request. Full fee payment is required before further action is taken on this request.

8. ☐ With respect to the request for corrected Letters Patent (Grant), corrections to the original Letters Patent are made under the provisions of Rule 1.322(b), not Rule1.323, unless a petition is granted.

9. ☑ Other Comments: Incorrect Claim dependency for claim 46.. request is higher than should be.

Further correspondence concerning this matter should be filed and directed to the Certificates of Correction Branch.

Legal Instrument Examiner: /YOLANDA A MIDDLETON/ LIE, ODM

Phone: (703)756-1282

Certificates of Correction Branch email:CustomerServiceCoC@uspto.gov

CoC Central Phone Number: (703)756-1814

If applicable, information regarding a petition under 37 CFR 1.183 should be directed to the attention of the Commissioner for Patents using the FAX number (571) 273-8300

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
Part of Paper No. 20241220
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I hereby certify that this paper is being transmitted via the Office electronic filing system in accordance with 37 CFR § 1.6(a)(4).

Dated: November 30, 2022
Electronic Signature for Carina Morales: / Carina Morales /

Docket No.: P38213US2/77770000489102
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Letters Patent of:
Christopher D. SOLI et al.

Patent No.: 10,568,533

Issued: February 25, 2020

For: USER INTERFACES FOR HEALTH MONITORING

REQUEST TO CORRECT INVENTORSHIP UNDER 37 C.F.R. §1.324

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Applicant respectfully requests that the inventorship of the above-captioned patent be corrected to add the following co-inventors: Heather E. DANIEL and Stephen O. LEMAY, who were erroneously omitted as inventors.

After correction of the inventorship, the list of inventors should be as follows:

Christopher D. SOLI;
Matthew W. CROWLEY;
Bradley W. GRIFFIN;
Gary Ian BUTCHER;
Roxanne BRITTAIN;
Heather E. DANIEL;
Stephen O. LEMAY.

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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In support of this request Applicant encloses: Statements by each of the above-listed inventors agreeing to the change of inventorship or stating that he or she has no disagreement regarding the requested change; and a Statement by the Assignee agreeing to the change of inventorship. The required fee of $160.00 under 37 CFR 1.20(b) is authorized to be charged to **Deposit Account No. 193140**.

This request is being concurrently filed with a Request for Certificate of Correction Pursuant to 37 C.F.R. § 1.324, to add the omitted inventors to the issued patent.

The U.S. Patent and Trademark Office is respectfully requested to correct the inventorship. In the event the U.S. Patent and Trademark Office determines that an extension and/or other relief is required, Applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. **193140** referencing docket no. **P38213US2/77770000489102.**

Dated: November 30, 2022

Respectfully submitted,

Electronic signature: /Brian B. Ho/
Brian B. Ho
Registration No.: 60,199

DENTONS US LLP
1999 Harrison Street
Suite 1300
Oakland, CA 94612
United States
P +1 415 356-4628

Docket No.: P38213US2/77770000489102
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Letters Patent of:
Christopher D. SOLI et al.

Patent No.: 10,568,533

Issued: February 25, 2020

For: USER INTERFACES FOR HEALTH MONITORING

STATEMENT BY ASSIGNEE IN SUPPORT OF REQUEST FOR CORRECTION OF INVENTORSHIP PURSUANT TO 37 C.F.R. § 1.324

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Apple Inc. is the assignee of the above-captioned patent application, which has issued as U.S. Patent No. 10,568,533, as recorded in the U.S. Patent and Trademark Office at Reel 048113, Frame 0343. Apple Inc. understands that co-inventors Heather E. DANIEL and Stephen O. LEMAY were erroneously omitted as inventors. Accordingly, Apple Inc. agrees to the change in inventorship to add Heather E. DANIEL and Stephen O. LEMAY as co-inventors in the above-referenced patent.

APPLE INC.

Signature: / /

Name: Jeffrey L. Myers

Title: Chief IP Counsel and Assistant Secretary

Date: 08-Nov-2022

122634239

Docket No.: P38213US2/77770000489102
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Letters Patent of:
Christopher D. SOLI et al.

Patent No.: 10,568,533

Issued: February 25, 2020

For: USER INTERFACES FOR HEALTH MONITORING

STATEMENT BY CHRISTOPHER D. SOLI IN SUPPORT OF REQUEST FOR CORRECTION OF INVENTORSHIP PURSUANT TO 37 C.F.R. § 1.324

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

I, Christopher D. SOLI, declare as follows:

1) I am named as an inventor of an invention claimed in the above-referenced patent;

2) Heather E. DANIEL was erroneously omitted from the inventorship in the above-referenced patent;

3) Stephen O. LEMAY was erroneously omitted from the inventorship in the above-referenced patent; and

4) I agree with the change of inventorship to add Heather E. DANIEL and Stephen O. LEMAY as an inventor for the above-referenced patent, or have no disagreement in regard to the change of inventorship.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and that these statements

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: Nov 8, 2022 Signature / Chris Soli (Nov 8, 2022 18:18 PST) /

Christopher D. SOLI

Docket No.: P38213US2/77770000489102
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Letters Patent of:
Christopher D. SOLI et al.

Patent No.: 10,568,533

Issued: February 25, 2020

For: USER INTERFACES FOR HEALTH MONITORING

STATEMENT BY MATTHEW W. CROWLEY IN SUPPORT OF REQUEST FOR CORRECTION OF INVENTORSHIP PURSUANT TO 37 C.F.R. § 1.324

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

I, Matthew W. CROWLEY, declare as follows:

1) I am named as an inventor of an invention claimed in the above-referenced patent;
2) Heather E. DANIEL was erroneously omitted from the inventorship in the above-referenced patent;
3) Stephen O. LEMAY was erroneously omitted from the inventorship in the above-referenced patent; and
4) I agree with the change of inventorship to add Heather E. DANIEL and Stephen O. LEMAY as an inventor for the above-referenced patent, or have no disagreement in regard to the change of inventorship.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and that these statements were

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: Nov 8, 2022 Signature / Matt Crowley /

Matthew W. CROWLEY

Docket No.: P38213US2/77770000489102
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Letters Patent of:
Christopher D. SOLI et al.

Patent No.: 10,568,533

Issued: February 25, 2020

For: USER INTERFACES FOR HEALTH MONITORING

STATEMENT BY BRADLEY W. GRIFFIN IN SUPPORT OF REQUEST FOR CORRECTION OF INVENTORSHIP PURSUANT TO 37 C.F.R. § 1.324

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

I, Bradley W. GRIFFIN, declare as follows:

1) I am named as an inventor of an invention claimed in the above-referenced patent;
2) Heather E. DANIEL was erroneously omitted from the inventorship in the above-referenced patent;
3) Stephen O. LEMAY was erroneously omitted from the inventorship in the above-referenced patent; and
4) I agree with the change of inventorship to add Heather E. DANIEL and Stephen O. LEMAY as an inventor for the above-referenced patent, or have no disagreement in regard to the change of inventorship.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and that these statements were

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: Nov 8, 2022 Signature / Bradley W. Griffin (Nov 8, 2022 13:13 PST) /

Bradley W. GRIFFIN

Docket No.: P38213US2/77770000489102
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Letters Patent of:
Christopher D. SOLI et al.

Patent No.: 10,568,533

Issued: February 25, 2020

For: USER INTERFACES FOR HEALTH MONITORING

STATEMENT BY GARY IAN BUTCHER IN SUPPORT OF REQUEST FOR CORRECTION OF INVENTORSHIP PURSUANT TO 37 C.F.R. § 1.324

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

I, Gary Ian BUTCHER, declare as follows:

1) I am named as an inventor of an invention claimed in the above-referenced patent;
2) Heather E. DANIEL was erroneously omitted from the inventorship in the above-referenced patent;
3) Stephen O. LEMAY was erroneously omitted from the inventorship in the above-referenced patent; and
4) I agree with the change of inventorship to add Heather E. DANIEL and Stephen O. LEMAY as an inventor for the above-referenced patent, or have no disagreement in regard to the change of inventorship.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and that these statements were

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 07-Nov-2022 Signature /Gary Ian BUTCHER/

Gary Ian BUTCHER

Docket No.: P38213US2/77770000489102
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Letters Patent of:
Christopher D. SOLI et al.

Patent No.: 10,568,533

Issued: February 25, 2020

For: USER INTERFACES FOR HEALTH MONITORING

STATEMENT BY ROXANNE BRITTAIN IN SUPPORT OF REQUEST FOR CORRECTION OF INVENTORSHIP PURSUANT TO 37 C.F.R. § 1.324

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

I, Roxanne BRITTAIN, declare as follows:

1) I am named as an inventor of an invention claimed in the above-referenced patent;
2) Heather E. DANIEL was erroneously omitted from the inventorship in the above-referenced patent;
3) Stephen O. LEMAY was erroneously omitted from the inventorship in the above-referenced patent; and
4) I agree with the change of inventorship to add Heather E. DANIEL and Stephen O. LEMAY as an inventor for the above-referenced patent, or have no disagreement in regard to the change of inventorship.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and that these statements were

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 07-Nov-2022 Signature /Roxanne Brittain/
Roxanne Brittain (Nov 7, 2022 12:36 PST)

Roxanne BRITTAIN

Docket No.: P38213US2/77770000489102
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Letters Patent of:
Christopher D. SOLI et al.

Patent No.: 10,568,533

Issued: February 25, 2020

For: USER INTERFACES FOR HEALTH MONITORING

STATEMENT BY HEATHER E. DANIEL IN SUPPORT OF REQUEST FOR CORRECTION OF INVENTORSHIP PURSUANT TO 37 C.F.R. § 1.324

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

I, Heather E. DANIEL, declare as follows:

1) I am an inventor of an invention claimed in the above-referenced patent;
2) My name was erroneously omitted from the inventorship in the above-referenced patent;
3) Stephen O. LEMAY was erroneously omitted from the inventorship in the above-referenced patent; and
4) I agree with the change of inventorship to add Stephen O. LEMAY and myself as an inventor for the above-referenced patent, or have no disagreement in regard to the change of inventorship.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and that these statements were

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: Nov 8, 2022 Signature / Heather Daniel (Nov 8, 2022 15:16 PST) /

Heather E. DANIEL

Docket No.: P38213US2/77770000489102
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Letters Patent of:
Christopher D. SOLI et al.

Patent No.: 10,568,533

Issued: February 25, 2020

For: USER INTERFACES FOR HEALTH MONITORING

STATEMENT BY STEPHEN O. LEMAY IN SUPPORT OF REQUEST FOR CORRECTION OF INVENTORSHIP PURSUANT TO 37 C.F.R. § 1.324

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

I, Stephen O. LEMAY, declare as follows:

1) I am an inventor of an invention claimed in the above-referenced patent;

2) Heather E. DANIEL was erroneously omitted from the inventorship in the above-referenced patent;

3) My name was erroneously omitted from the inventorship in the above-referenced patent; and

4) I agree with the change of inventorship to add Heather E. DANIEL and myself as an inventor for the above-referenced patent, or have no disagreement in regard to the change of inventorship

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and that these statements were

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: Nov 8, 2022 Signature / Steve Lemay / Steve Lemay (Nov 8, 2022 12:58 PST)

Stephen O. LEMAY

PTO/AIA/01 (06-12)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	USER INTERFACES FOR HEALTH MONITORING

As the below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

☒ United States application or PCT international application number 16/143,959

filed on September 27, 2018.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Heather E. DANIEL Date (Optional): Nov 8, 2022

Signature: / Heather Daniel (Nov 8, 2022 15:51 EST) /

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995, unless the information collection has a currently valid OMB Control Number. The OMB Control Number for this information collection is 0651-0032. Public burden for this form is estimated to average 1 minute per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Chief Administrative Officer, United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 or email InformationCollection@uspto.gov. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.** If filing this completed form by mail, send to: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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PTO/AIA/01 (06-12)
Approved for use through 05/31/2024. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	USER INTERFACES FOR HEALTH MONITORING

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This declaration is directed to:

☐ The attached application, or

☒ United States application or PCT international application number 16/143,959

filed on September 27, 2018.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

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LEGAL NAME OF INVENTOR

Inventor: Stephen O. LEMAY Date (Optional): Nov 8, 2022

Signature: / Steve Lemay / (Steve Lemay, Nov 8, 2022 12:55 PST)

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995, unless the information collection has a currently valid OMB Control Number. The OMB Control Number for this information collection is 0651-0032. Public burden for this form is estimated to average 1 minute per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Chief Administrative Officer, United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 or email InformationCollection@uspto.gov. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.** If filing this completed form by mail, send to: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Electronic Patent Application Fee Transmittal

Application Number:	16143959
Filing Date:	27-Sep-2018
Title of Invention:	USER INTERFACES FOR HEALTH MONITORING
First Named Inventor/Applicant Name:	Christopher D. SOLI
Filer:	Brian B. Ho/Carina Morales
Attorney Docket Number:	P38213US2/77770000489102

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
CERTIFICATE OF CORRECTION	1811	1	160	160
PROCESSING FEE CORRECTING INVENTORSHIP	1816	1	160	160
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**320**

Electronic Acknowledgement Receipt

EFS ID:	47114895
Application Number:	16143959
International Application Number:	
Confirmation Number:	6224
Title of Invention:	USER INTERFACES FOR HEALTH MONITORING
First Named Inventor/Applicant Name:	Christopher D. SOLI
Customer Number:	150004
Filer:	Brian B. Ho/Carina Morales
Filer Authorized By:	Brian B. Ho
Attorney Docket Number:	P38213US2/77770000489102
Receipt Date:	30-NOV-2022
Filing Date:	27-SEP-2018
Time Stamp:	14:11:31
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$320
RAM confirmation Number	E2022ATE12043507
Deposit Account	193140
Authorized User	Carina Morales

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

AliveCor Exhibit 1002
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IPR2024-00095, U.S. Patent No. 10,568,533
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37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Certificate of Correction	P38213US2_ReqCOC.pdf	237623 e8e0f79f3f059994a81e4b9a7e123fdbf35eee08	no	3
Warnings:					
Information:					
2	Petition for review by the Office of Petitions	P38213US2_ReqCorrInv.pdf	4365076 b2da8ea21bf59da88f20b190226d35f2d17569dc	no	17
Warnings:					
Information:					
3	Oath or Declaration filed	P38213US2_Declarations.pdf	1860260 38a95787b110a7327d0c91d89a31934f635a9538	no	2
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	40014 89c9e8f00b07c77b29e9382aef538f469e7702d6	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	6502973		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

I hereby certify that this paper is being transmitted via the Office electronic filing system in accordance with 37 CFR § 1.6(a)(4).

Dated: November 30, 2022
Electronic Signature for Carina Morales: /Carina Morales/

Docket No.: P38213US2/77770000489102
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Letters Patent of:
Christopher D. SOLI et al.

Patent No.: 10,568,533

Issued: February 25, 2020

For: USER INTERFACES FOR HEALTH MONITORING

REQUEST FOR CERTIFICATE OF CORRECTION
PURSUANT TO 37 C.F.R. § 1.324

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Upon reviewing the above-identified patent, Patentee noted errors that should be corrected as noted on the accompanying Certificate of Correction. Specifically, co-inventors Heather E. DANIEL and Stephen O. LEMAY were erroneously omitted as co-inventors for the above-referenced patent. Accordingly, the accompanying Certificate of Correction is being submitted to add the omitted co-inventors to the patent in conjunction with a Request to Correct Inventorship Under 37 C.F.R. §1.324, which is concurrently filed herewith to add inventors Heather E. DANIEL and Stephen O. LEMAY as co-inventors to the above-referenced patent.

Patentee respectfully solicits the granting of the requested Certificate of Correction.

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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Payment via EFS-Web in the amount of $160.00 covering the fee set forth in 37 C.F.R. § 1.20(a) is accompanying this request. The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 193140, under Order No. **P38213US2/77770000489102**.

Dated: November 30, 2022

Respectfully submitted,

Electronic signature: /Brian B. Ho/
Brian B. Ho
Registration No.: 60,199
1999 Harrison Street
Suite 1300
Oakland, CA 94612
United States
P +1 415 356-4628

PTO/SB/44 (09-07)
Approved for use through 03/31/2023. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 10,568,533

APPLICATION NO.: 16/143,959

ISSUE DATE : 02-25-2020

INVENTOR(S) : Christopher D. SOLI et al.

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

On the Cover, Column 1 (Inventors), after "Roxanne Brittain, Berkeley, CA (US)" insert - - ; Heather E. DANIEL, San Jose, CA (US); Stephen O. LEMAY, Palo Alto, CA (US) - -.

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

Brian B. Ho, Registration No.: 60,199
DENTONS US LLP, 1999 Harrison Street, Suite 1300
Oakland, CA 94612

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

I hereby certify that this paper is being transmitted via the Office electronic filing system in accordance with 37 CFR § 1.6(a)(4).

Dated: November 8, 2022
Electronic Signature for Carina Morales: / Carina Morales /

Docket No.: P38213US2/77770000489102
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Letters Patent of:
Christopher D. SOLI et al.

Patent No.: 10,568,533

Issued: February 25, 2020

For: USER INTERFACES FOR HEALTH MONITORING

REQUEST FOR CERTIFICATE OF CORRECTION
PURSUANT TO 37 C.F.R. § 1.323

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Upon reviewing the above-identified patent, Patentee noted errors that should be corrected as noted on the accompanying Certificate of Correction. The errors now sought to be corrected are inadvertent typographical and clerical errors, the correction of which do not involve new matter or require reexamination. Patentee respectfully solicits the granting of the requested Certificate of Correction.

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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Payment via EFS-Web in the amount of $160.00 covering the fee set forth in 37 C.F.R. § 1.20(a) is accompanying this request. The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 193140, under Order No. **P38213US2/77770000489102**.

Dated: November 8, 2022

Respectfully submitted,

Electronic signature: /Taylor S. Dennington/
Taylor S. Dennington
Registration No.: 66,956
DENTONS US LLP
1400 Wewatta Street
Suite 700
Denver, CO 80202
United States
P +1 (303) 634-4345

PTO/SB/44 (09-07)
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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 10,568,533

APPLICATION NO.: 16/143,959

ISSUE DATE : 02-25-2020

INVENTOR(S) : Christopher D. SOLI et al.

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

In the drawings, Sheet 46, FIG. 8A, delete the reference numeral "810" and insert the reference numeral - - 811 - -, therefor.

In Column 42, Line 5, delete "first page 616" and insert - - second page 616 - -, therefor.

In Column 54, Line 28, delete "the second electronic device (e.g., 600b)" and insert - - the second electronic device (e.g., 600B) - -,therefor.

In Column 54, Line 35, delete "the second electronic device (e.g., 600b)" and insert - - the second electronic device (e.g., 600B) - -, therefor.

In Column 61, Line 3, delete "a notification message 810" and insert - - a notification message 811 - -, therefor.

In Column 61, Line 8, delete "a notification message 810" and insert - - a notification message 811 - -, therefor.

In Column 61, Lines 31-32, delete "a notification message 810" and insert - - a notification message 811 - -, therefor.

In Column 61, Lines 41-42, delete "a notification message 810" and insert - - a notification message 811 - -, therefor.

In Column 65, Lines 36-37, delete "forming animation forming animation 808" and insert - - forming animation 808 - -, therefor.

In Column 72, Lines 33-34, delete "a notification message 810" and insert - - a notification message 811 - -, therefor.

In Column 100, Line 55, Claim 7, delete "The first electronic device of claim 6" and insert - - The first electronic device of claim 8 - -, therefor.

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

Taylor S. Dennington, Registration No.: 66,956
DENTONS US LLP, 1400 Wewatta Street, Suite 700
Denver, CO 80202

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 10,568,533

APPLICATION NO.: 16/143,959

ISSUE DATE : 02-25-2020

INVENTOR(S) : Christopher D. SOLI et al.

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

In Column 101, Lines 13-14, Claim 10, delete "a timer indicating the amount of time" and insert - - a timer indicating an amount of time - -, therefor.

In Column 101, Line 26, Claim 12, delete "the second criteria is met" and insert - - the second criteria are met - -, therefor.

In Column 101, Line 30, Claim 13, delete "The first electronic device of claim 11" and insert - - The first electronic device of claim 12 - -, therefor.

In Column 101, Line 31, Claim 13, delete "the second criteria is met" and insert - - the second criteria are met - -, therefor.

In Column 101, Line 37, Claim 14, delete "the second criteria is met" and insert - - the second criteria are met - -, therefor.

In Column 101, Line 43, Claim 15, delete "the second criteria is met" and insert - - the second criteria are met - -, therefor.

In Column 102, Line 6, Claim 19, delete "the second criteria being no longer met" and insert - - the first criteria being no longer met - -, therefor.

In Column 103, Line 8, Claim 26, delete “medium of claim 25” and insert - - medium of claim 27 - -, therefor.

In Column 103, Line 36, Claim 29, delete "indicating the amount of time" and insert - - indicating an amount of time- -, therefor.

In Column 103, Line 50, Claim 31, delete "the second criteria is met" and insert - - the second criteria are met- -, therefor.

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Taylor S. Dennington, Registration No.: 66,956
DENTONS US LLP, 1400 Wewatta Street, Suite 700
Denver, CO 80202

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 10,568,533

APPLICATION NO.: 16/143,959

ISSUE DATE : 02-25-2020

INVENTOR(S) : Christopher D. SOLI et al.

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

In Column 103, Line 55, Claim 32, delete “medium of claim 30” and insert - - medium of claim 31 - -, therefor.

In Column 103, Line 56, Claim 32, delete "the second criteria is met" and insert - - the second criteria are met - -, therefor.

In Column 103, Line 63, Claim 33, delete "the second criteria is met" and insert - - the second criteria are met- -, therefor.

In Column 104, Line 3, Claim 34, delete "the second criteria is met" and insert - - the second criteria are met - - , therefor.

In Column 104, Line 37, Claim 38, delete " the second criteria" and insert - - the first criteria - - , therefor.

In Column 105, Line 33, Claim 45, delete " The method of claim 44” and insert - - The method of claim 46 - - , therefor.

In Column 105, Line 57, Claim 48, delete "the amount of time" and insert - - an amount of time- -, therefor.

In Column 106, Line 9, Claim 50, delete "the second criteria is met" and insert - - the second criteria are met - -, therefor.

In Column 106, Line 13, Claim 51, delete "The method of claim 49" and insert - - The method of claim 50 - -, therefor.

In Column 106, Line 14, Claim 51, delete "the second criteria is met" and insert - - the second criteria are met - -, therefor.

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Taylor S. Dennington, Registration No.: 66,956
DENTONS US LLP, 1400 Wewatta Street, Suite 700
Denver, CO 80202

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 10,568,533

APPLICATION NO.: 16/143,959

ISSUE DATE : 02-25-2020

INVENTOR(S) : Christopher D. SOLI et al.

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

In Column 106, Line 19, Claim 52, delete "the second criteria is met" and insert - - the second criteria are met - -, therefor.

In Column 106, Line 25, Claim 53, delete "the second criteria is met" and insert - - the second criteria are met - -, therefor.

In Column 106, Line 52, Claim 57, delete " the second criteria" and insert - - the first criteria - - , therefor.

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

Taylor S. Dennington, Registration No.: 66,956
DENTONS US LLP, 1400 Wewatta Street, Suite 700
Denver, CO 80202

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Patent Application Fee Transmittal

Application Number:	16143959
Filing Date:	27-Sep-2018
Title of Invention:	USER INTERFACES FOR HEALTH MONITORING
First Named Inventor/Applicant Name:	Christopher D. SOLI
Filer:	Taylor S. Dennington/Carina Morales
Attorney Docket Number:	P38213US2/77770000489102

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
CERTIFICATE OF CORRECTION	1811	1	160	160

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**160**

Electronic Acknowledgement Receipt

EFS ID:	46986319
Application Number:	16143959
International Application Number:	
Confirmation Number:	6224
Title of Invention:	USER INTERFACES FOR HEALTH MONITORING
First Named Inventor/Applicant Name:	Christopher D. SOLI
Customer Number:	150004
Filer:	Taylor S. Dennington/Carina Morales
Filer Authorized By:	Taylor S. Dennington
Attorney Docket Number:	P38213US2/77770000489102
Receipt Date:	08-NOV-2022
Filing Date:	27-SEP-2018
Time Stamp:	20:05:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$160
RAM confirmation Number	E2022A8K06080163
Deposit Account	193140
Authorized User	Carina Morales

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.20 (Post Issuance fees)

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
60 of 1413

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Certificate of Correction	P38213US2_ReqCOC.pdf	238421 a540fccf0f8e7b567933975b06590fc89512af67	no	6
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	37733 6fa34e2e34b49debe90658b5ae108f8e88f79598	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	276154		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/143,959	02/25/2020	10568533	P38213US2/77770000489102	6224

150004 7590 02/05/2020

DENTONS US LLP - Apple
4655 Executive Dr
Suite 700
San Diego, CA 92121

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Apple Inc., Cupertino, CA;
Christopher D. SOLI, Mountain View, CA;
Matthew W. CROWLEY, San Francisco, CA;
Bradley W. GRIFFIN, Berkeley, CA;
Gary Ian BUTCHER, San Jose, CA;
Roxanne BRITTAIN, Berkeley, CA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
62 of 1413

Doc Code: MFEE.C.AD
Document Description: Maintenance Fee Address Change

PTO/SB/47-EFS

FEE ADDRESS INDICATION FORM

Application Number	16143959	Art Unit	3792
Filing Date	27-Sep-2018	Examiner Name	MICHAEL LAU
First Name Inventor	Christopher SOLI	Attorney Doc. Number	P38213US2/77770000489102

INSTRUCTIONS: In order for the fee address identified on this form to be effective, the issue fee must have been paid for the application listed on this form. Only an address represented by a customer number can be established as the fee address for maintenance fee purposes (hereafter, fee address). A fee address should be established when correspondence related to maintenance fees should be mailed to a different address than the correspondence address for the application. For more information on customer numbers, see the Manual of Patent Examining Procedure (MPEP) § 403.

Please recognize as the Fee Address under the provisions of 37 CFR 1.363 the address associated with:

Customer Number:	000197 CPA GLOBAL LIMITED 2318 Mill Road 12th Floor ALEXANDRIA VA 22314 UNITED STATES 7037392234

Signature :

I certify, in accordance with 37 CFR 1.4(d)(4) that I am an attorney or agent registered to practice before the Patent and Trademark Office who has filed and has been granted power of attorney in this application.

Signature	/Randy Omid/	**Date**	01-16-2020
Name	Randy Omid	**Registration Number**	67439

Electronic Patent Application Fee Transmittal

Application Number:	16143959
Filing Date:	27-Sep-2018
Title of Invention:	USER INTERFACES FOR HEALTH MONITORING
First Named Inventor/Applicant Name:	Christopher D. SOLI
Filer:	Randy Omid/Staci Berry
Attorney Docket Number:	P38213US2/77770000489102

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY APPL ISSUE FEE	1501	1	1000	1000
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1000**

Electronic Acknowledgement Receipt

EFS ID:	38315997
Application Number:	16143959
International Application Number:	
Confirmation Number:	6224
Title of Invention:	USER INTERFACES FOR HEALTH MONITORING
First Named Inventor/Applicant Name:	Christopher D. SOLI
Customer Number:	150004
Filer:	Randy Omid/Staci Berry
Filer Authorized By:	Randy Omid
Attorney Docket Number:	P38213US2/77770000489102
Receipt Date:	16-JAN-2020
Filing Date:	27-SEP-2018
Time Stamp:	16:17:23
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1000
RAM confirmation Number	E20201FG17207481
Deposit Account	193140
Authorized User	Staci Berry

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
66 of 1413

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	Web85b.pdf	45983 3b50c29f5c436b4846658a263e65fdd93efaed53	no	2
Warnings:					
Information:					
2	Maintenance Fee Address Change	web85feeaddress.pdf	32544 ea1e05db9ec8b30cb0ed87910a392572f8198774	no	1
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	31999 03d9308d6370209a4a44096d6559c30856dcc229	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	110526		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

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National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Document Description: Issue Fee Payment (PTO-85B)

Issue Fee Transmittal Form

Application Number	Filing Date	First Named Inventor	Atty. Docket No.	Confirmation No.
16143959	27-Sep-2018	Christopher SOLI	P38213US2/777700004891	6224

TITLE OF INVENTION :

USER INTERFACES FOR HEALTH MONITORING

Entity Status	Application Type	Art Unit	Class - Subclass	EXAMINER
Regular Undiscounted	Utility under 35 USC 111(a)	3792	301000	MICHAEL LAU

Issue Fee Due	Publication Due	Total Fee(s) Due	Date Due	Prev. Paid Fee
$1000	$0	$1000	31-Jan-2020	$0

1.Change of Correspondence Address and/or Indication Of Fee Address (37 CFR 1.33 & 1.363)

Current Correspondence Address:	Current Indicated Fee Address :
150004 DENTONS US LLP - Apple 4655 Executive Dr Suite 700 San Diego CA 92121 UNITED STATES 3128767925 dentons_PAIR@firsttofile.com	
☐ Change of correspondence address requested, system generated AIA/122-EFS form attached	☒ Fee Address indication requested, system generated SB/47-EFS form attached

2.Entity Status

Change in Entity Status

○ Applicant certifying micro entity status; system generated Micro Entity certification form attached. See 37 CFR 1.29.
Note: Absent a valid certification of micro entity status, issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment. If this box is checked, you will be prompted to choose a micro entity status on the gross income basis (37 CFR 1.29(a)) or the institution of higher education basis (37 CFR 1.29(d)), and make the applicable certification online.

○ Applicant asserting small entity status. See 37 CFR 1.27.
Note: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

◉ Applicant changing to regular undiscounted fee status.
Note: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
68 of 1413

Doc Code: IFEE PTOL/85B-EFS

Document Description: Issue Fee Payment (PTO-85B)

3.The Following Fee(s) Are Submitted:

☒ Issue Fee

☐ I authorize USPTO to apply my previously paid issue fee to the current fees due

☐ Publication Fee

☐ The Director is hereby authorized to apply my previously paid issue fee to the current fee due and to charge deficient fees to Deposit Account Number _____

☐ Advance Order - # of copies _____

☒ If **in addition to** the payment of the issue fee amount submitted with this form, there are any discrepancies in any amount(s) due, the Director is authorized to charge any deficiency, or credit any overpayment, to Deposit Account Number 193140 . The **issue fee must be submitted** with this form. **If payment of the issue fee does not accompany this form, checking this box and providing a deposit account number will NOT be effective to satisfy full payment of the fee(s) due.**

4.Firm and/or Attorney Names To Be Printed

NOTE: If no name is listed, no name will be printed
For printing on the patent front page, list to be displayed as entered

1. DENTONS US LLP
2.
3.

5.Assignee Name(s) and Residence Data To Be Printed

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

Name	City	State	Country	Category
Apple Inc.	Cupertino	CALIFORNIA	united states	corporation

6.Signature

I certify, in accordance with 37 CFR 1.4(d)(4) that I am an attorney or agent registered to practice before the Patent and Trademark Office who has filed and has been granted power of attorney in this application. I also certify that this Fee(s) Transmittal form is being transmitted to the USPTO via EFS-WEB on the date indicated below.

Signature	/Randy Omid/	**Date**	01-16-2020
Name	Randy Omid	**Registration Number**	67439

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
69 of 1413

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/143,959	09/27/2018	Christopher D. SOLI	P38213US2/77770000489102	6224

150004 7590 12/13/2019

DENTONS US LLP - Apple
4655 Executive Dr
Suite 700
San Diego, CA 92121

EXAMINER
LAU, MICHAEL J

ART UNIT	PAPER NUMBER
3792	

NOTIFICATION DATE	DELIVERY MODE
12/13/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

dentons_PAIR@firsttofile.com
patents.us@dentons.com

Corrected ***Notice of Allowability***	**Application No.** 16/143,959	**Applicant(s)** SOLI et al.	
	Examiner MICHAEL J LAU	**Art Unit** 3792	**AIA (FITF) Status** Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to 7/17/2019.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1-57 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/MICHAEL J LAU/ Examiner, Art Unit 3792	/CARL H LAYNO/ Supervisory Patent Examiner, Art Unit 3792

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field

PTO/SB/08a (03-15)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/143,959
	Filing Date	2018-09-27
	First Named Inventor	Christopher D. SOLI
	Art Unit	3792
	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

U.S. PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

U.S. PATENT APPLICATION PUBLICATIONS						
Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS								
Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T[5]

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1.	Decision to Grant received for Danish Patent Application No. PA201870600, mailed on October 17, 2019, 2 pages.	

EXAMINER SIGNATURE			
Examiner Signature	/MICHAEL J LAU/	Date Considered	12/02/2019

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.
[4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.L./

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field

PTO/SB/08a (03-15)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/143,959
	Filing Date	2018-09-27
	First Named Inventor	Christopher D. SOLI
	Art Unit	3792
	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☒ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (2).

☐ See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Randy Omid/	Date (YYYY-MM-DD)	2019-11-07
Name/Print	Randy Omid	Registration Number	67,439

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.L./

PTO/SB/08a (03-15)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/143,959
	Filing Date	2018-09-27
	First Named Inventor	Christopher D. SOLI
	Art Unit	3792
	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

U.S. PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

U.S. PATENT APPLICATION PUBLICATIONS						
Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS								
Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T[5]

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1.	Decision to Grant received for Danish Patent Application No. PA201870600, mailed on October 17, 2019, 2 pages.	

EXAMINER SIGNATURE			
Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.
[4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/143,959
	Filing Date	2018-09-27
	First Named Inventor	Christopher D. SOLI
	Art Unit	3792
	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☒ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (2).

☐ See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Randy Omid/	Date (YYYY-MM-DD)	2019-11-07
Name/Print	Randy Omid	Registration Number	67,439

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Electronic Patent Application Fee Transmittal

Application Number:	16143959
Filing Date:	27-Sep-2018
Title of Invention:	USER INTERFACES FOR HEALTH MONITORING
First Named Inventor/Applicant Name:	Christopher D. SOLI
Filer:	Peter Jung-Hyon Yim/Swarnava Chakraborty
Attorney Docket Number:	P38213US2/77770000489102

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	1806	1	240	240
		Total in USD ($)		**240**

Electronic Acknowledgement Receipt

EFS ID:	37679792
Application Number:	16143959
International Application Number:	
Confirmation Number:	6224
Title of Invention:	USER INTERFACES FOR HEALTH MONITORING
First Named Inventor/Applicant Name:	Christopher D. SOLI
Customer Number:	150004
Filer:	Peter Jung-Hyon Yim/Swarnava Chakraborty
Filer Authorized By:	Peter Jung-Hyon Yim
Attorney Docket Number:	P38213US2/77770000489102
Receipt Date:	07-NOV-2019
Filing Date:	27-SEP-2018
Time Stamp:	02:45:22
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$240
RAM confirmation Number	E2019A7345471237
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	P38213US2_IDS.pdf	191245 67051ba5d6880b5f497e482db52aaf5272bef311	no	2
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Non Patent Literature	PA201870600_DKDG_10_17_2019.pdf	242033 561958b3190d7c028593357c336c47e127b74239	no	2
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30936 49c8573b45e01ff0934a75360d89612d0efd7c63	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	464214		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

150004 7590 10/31/2019

DENTONS US LLP - Apple
4655 Executive Dr
Suite 700
San Diego, CA 92121

EXAMINER	
LAU, MICHAEL J	
ART UNIT	PAPER NUMBER
3792	

DATE MAILED: 10/31/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/143,959	09/27/2018	Christopher D. SOLI	P38213US2/77770000489102	6224

TITLE OF INVENTION: USER INTERFACES FOR HEALTH MONITORING

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	01/31/2020

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

150004 7590 10/31/2019
DENTONS US LLP - Apple
4655 Executive Dr
Suite 700
San Diego, CA 92121

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/143,959	09/27/2018	Christopher D. SOLI	P38213US2/77770000489102	6224

TITLE OF INVENTION: USER INTERFACES FOR HEALTH MONITORING

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	01/31/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
LAU, MICHAEL J	3792	600-301000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/143,959	09/27/2018	Christopher D. SOLI	P38213US2/77770000489102	6224

150004 7590 10/31/2019

DENTONS US LLP - Apple
4655 Executive Dr
Suite 700
San Diego, CA 92121

EXAMINER	
LAU, MICHAEL J	

ART UNIT	PAPER NUMBER
3792	

DATE MAILED: 10/31/2019

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 16/143,959	Applicant(s) SOLI et al.	
	Examiner MICHAEL J LAU	Art Unit 3792	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to 7/17/2019.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1-57 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☑ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/MICHAEL J LAU/ Examiner, Art Unit 3792	/CARL H LAYNO/ Supervisory Patent Examiner, Art Unit 3792

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

2. Claims 1-57 are pending in the current application.

3. Claims 1, 19, and 20 are the independent claims.

Allowable Subject Matter

4. Claims 1-57 are allowed.

Reasons for Allowance

5. The following is an examiner's statement of reasons for allowance: Claims 1-57 are allowable over the prior art because the examiner found that none of the cited prior art discloses the replacement of display of the second user interface with the first user interface are no longer met for a second period of time that is longer than the first period of time.

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

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL J LAU whose telephone number is (571)272-2317. The examiner can normally be reached on 8-5:30 PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Carl Layno** can be reached on **(571) 272-4949**. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MICHAEL J LAU/
Examiner, Art Unit 3792

/CARL H LAYNO/
Supervisory Patent Examiner, Art Unit 3792

Notice of References Cited	Application/Control No. 16/143,959	Applicant(s)/Patent Under Reexamination SOLI et al.	
	Examiner MICHAEL J LAU	Art Unit 3792	Page 1 of 3

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20150185967-A1	07-2015	LY; Maria CK	G06F3/0488	715/720
*	B	US-20100062905-A1	03-2010	Rottler; Benjamin Andrew	G06F3/04883	482/9
*	C	US-20160058336-A1	03-2016	BLAHNIK; Jay	A61B5/1112	600/595
*	D	US-20170053542-A1	02-2017	WILSON; Christopher	G09B5/02	1/1
*	E	US-9813642-B1	11-2017	Chen; Sirong	H04N1/00244	1/1
*	F	US-20160109961-A1	04-2016	Parshionikar; Uday	G06F3/013	1/1
*	G	US-20160196635-A1	07-2016	CHO; Jong Keun	G06T3/40	345/660
*	H	US-20120283587-A1	11-2012	Gosh; Subham	A61B5/0402	600/510
*	I	US-20160174857-A1	06-2016	Eggers; Philip E.	G06F19/3418	600/301
*	J	US-20170300186-A1	10-2017	Kuhar; Peter	G06F3/0482	1/1
*	K	US-20180049696-A1	02-2018	EOM; Kunsun	A61B5/681	1/1
*	L	US-20170086693-A1	03-2017	Peterson; Aaron	A61B5/0006	1/1
*	M	US-20170202496-A1	07-2017	Ramanathan; Periakaruppan Kasi	A61B5/14552	1/1

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
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Notice of References Cited	Application/Control No. 16/143,959	Applicant(s)/Patent Under Reexamination SOLI et al.	
	Examiner MICHAEL J LAU	Art Unit 3792	Page 2 of 3

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20170075551-A1	03-2017	Robinson; Quentin N.	G06F3/04883	1/1
*	B	US-20180011686-A1	01-2018	ZHAO; Peijie	G06F1/163	1/1
*	C	US-20150288944-A1	10-2015	Nistico; Walter	G02B27/0172	345/156
*	D	US-20140266776-A1	09-2014	Miller; Thomas	A61B5/14865	340/870.01
*	E	US-20160058313-A1	03-2016	SATO; Reiko	A61B5/02438	600/508
*	F	US-20100017489-A1	01-2010	Birnbaum; David M.	H04W4/21	709/206
*	G	US-8321006-B1	11-2012	Snyder; Seth	G06T1/00	600/523
*	H	US-20060149144-A1	07-2006	Lynn; Lawrence A.	A61B5/00	600/323
*	I	US-20050010117-A1	01-2005	Agutter, James	A61B5/00	600/484
*	J	US-20170188841-A1	07-2017	Ma; Ran	G16H50/20	1/1
*	K	US-20170303844-A1	10-2017	Baker; Steven D.	A61B5/444	1/1
*	L	US-20150081210-A1	03-2015	Yeh; Sabrina Tai-Chen	G06F16/60	701/428
*	M	US-20160235325-A1	08-2016	Chou; Chang-An	A61B5/04085	1/1

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

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AliveCor Exhibit 1002
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Notice of References Cited	Application/Control No. 16/143,959	Applicant(s)/Patent Under Reexamination SOLI et al.	
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U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20150099991-A1	04-2015	YAMAGUCHI; Eiichiro	A61B5/024	600/508
*	B	US-20170007159-A1	01-2017	Dieffenderfer; James P.	A61B5/087	1/1
*	C	US-20170127997-A1	05-2017	Hyde; Roderick A.	A61B5/4362	1/1
*	D	US-20170172522-A1	06-2017	Insler; Joseph	A61B5/746	1/1
*	E	US-20080240519-A1	10-2008	NAGAMITSU; Sachio	G06F3/012	382/118
*	F	US-20170046024-A1	02-2017	Dascola; Jonathan R.	H04M1/72522	1/1
*	G	US-20160275990-A1	09-2016	Vassort; Thomas Niel	G11B27/034	1/1
*	H	US-20140143678-A1	05-2014	Mistry; Pranav	G06F3/0481	715/746
*	I	US-20150216448-A1	08-2015	Lotan; Chaim	A61B5/6898	600/538
*	J	US-20130215042-A1	08-2013	Messerschmidt; Robert G.	G06F3/041	345/173
*	K	US-20030181291-A1	09-2003	Ogawa, Kiyotaka	A63B24/00	482/8
*	L	US-20150196804-A1	07-2015	Koduri; Sunil	G06K9/00342	482/8
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/143,959	SOLI et al.
	Examiner	Art Unit
	MICHAEL J LAU	3792

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	04/10/2019	10/23/2019							
1	1	✓	=							
2	2	✓	=							
3	3	✓	=							
4	4	✓	=							
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/143,959	SOLI et al.
	Examiner	**Art Unit**
	MICHAEL J LAU	3792

CLAIM		DATE								
Final	Original	04/10/2019	10/23/2019							
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AliveCor Exhibit 1002
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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/143,959	SOLI et al.
	Examiner	**Art Unit**
	MICHAEL J LAU	3792

CPC						
Symbol					**Type**	**Version**
A61B	/	5	/	0404	F	2013-01-01
G06F	/	1	/	163	I	2013-01-01
A61B	/	5	/	02	I	2013-01-01
G06F	/	9	/	453	I	2018-02-01
G06F	/	3	/	0485	I	2013-01-01
G06F	/	3	/	017	I	2013-01-01
G06T	/	13	/	80	I	2013-01-01

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

/MICHAEL J LAU/ Examiner, Art Unit 3792	23 October 2019	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	57	
/CARL H LAYNO/ Supervisory Patent Examiner, Art Unit 3792	24 October 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	8A-D

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
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	Examiner	**Art Unit**
	MICHAEL J LAU	3792

INTERNATIONAL CLASSIFICATION				
CLAIMED				
A61B	/	5	/	00

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

/MICHAEL J LAU/ Examiner, Art Unit 3792	23 October 2019	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	57	
/CARL H LAYNO/ Supervisory Patent Examiner, Art Unit 3792	24 October 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	8A-D

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/143,959	SOLI et al.
	Examiner	**Art Unit**
	MICHAEL J LAU	3792

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	10	20	19	27	28	36	37	46	46	55	55		
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8	8	17	17	25	26	34	35	44	44	53	53				
9	9	18	18	26	27	35	36	45	45	54	54				

/MICHAEL J LAU/ Examiner, Art Unit 3792	23 October 2019	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	57	
/CARL H LAYNO/ Supervisory Patent Examiner, Art Unit 3792	24 October 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	8A-D

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/143,959	SOLI et al.
	Examiner	Art Unit
	MICHAEL J LAU	3792

CPC - Searched*		
Symbol	**Date**	**Examiner**
A61B5/02,0404, 742-745	04/10/2019	ML
G06F9/453	04/10/2019	ML
G06F1/163	04/10/2019	ML
G06F3/017,0485	04/10/2019	ML
G06F9/453	04/10/2019	ML
G06T13/80	04/10/2019	ML

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
600	301	04/10/2019	ML

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
inventor search on palm, prior art search on east	04/10/2019	ML
updated search in east	10/23/2019	ML

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
	see search history for interference search	10/23/2019	ML

/MICHAEL J LAU/
Examiner, Art Unit 3792

AliveCor Exhibit 1002
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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field

PTO/SB/08a (03-15)
Approved for use through 07/31/2016. OMB 0651-0031
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/143,959
	Filing Date	2018-09-27
	First Named Inventor	Christopher D. SOLI
	Art Unit	3792
	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

U.S. PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

U.S. PATENT APPLICATION PUBLICATIONS						
Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS								
Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T[5]

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1.	Office Action received for Danish Patent Application No. PA201870601, mailed on June 25, 2019, 3 pages.	
	2.	Office Action received for Danish Patent Application No. PA201870602, mailed on June 26, 2019, 3 pages.	

EXAMINER SIGNATURE			
Examiner Signature	/MICHAEL J LAU/	Date Considered	10/22/2019

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.
[4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.L./

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field

PTO/SB/08a (03-15)
Approved for use through 07/31/2016. OMB 0651-0031
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	Application Number	16/143,959
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	First Named Inventor	Christopher D. SOLI
	Art Unit	3792
	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (2).

☐ See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Randy Omid/	Date (YYYY-MM-DD)	2019-07-24
Name/Print	Randy Omid	Registration Number	67,439

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.L./

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BIB DATA SHEET

CONFIRMATION NO. 6224

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
16/143,959	09/27/2018 RULE	600	3792	P38213US2/777700004891 02

APPLICANTS

Apple Inc., Cupertino, CA;

INVENTORS

Christopher D. SOLI, Mountain View, CA;
Matthew W. CROWLEY, San Francisco, CA;
Bradley W. GRIFFIN, Berkeley, CA;
Gary Ian BUTCHER, San Jose, CA;
Roxanne BRITTAIN, Berkeley, CA;

**** CONTINUING DATA ***************************

This appln claims benefit of 62/657,870 04/15/2018
and claims benefit of 62/657,881 04/15/2018
and claims benefit of 62/643,699 03/15/2018
and claims benefit of 62/641,994 03/12/2018

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****

10/18/2018

Foreign Priority claimed	❑ Yes ☑ No	❑ Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
35 USC 119(a-d) conditions met	❑ Yes ☑ No					
Verified and Acknowledged	/MICHAEL J LAU/ Examiner's Signature	Initials	CA	76	20	3

ADDRESS

DENTONS US LLP - Apple
4655 Executive Dr
Suite 700
San Diego, CA 92121
UNITED STATES

TITLE

USER INTERFACES FOR HEALTH MONITORING

FILING FEE RECEIVED		
6780	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	❑ All Fees ❑ 1.16 Fees (Filing) ❑ 1.17 Fees (Processing Ext. of time) ❑ 1.18 Fees (Issue) ❑ Other _____ ❑ Credit

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	3	("20100076331" | "20160292373" | "20170032168").PN.	US-PGPUB; USPAT	OR	OFF	2019/03/15 16:44
S2	12	("20130114100" | "20140081118" | "20140240349" | "20160301761" | "20170000359" | "20170274149" | "20180000426" | "20180049696" | "20190025995" | "20190034049" | "20190034050" | "9801562").PN.	US-PGPUB; USPAT	OR	OFF	2019/03/15 16:44
S3	22	("20040017300" | "20060152372" | "20080200312" | "20100010832" | "20110098928" | "20110245623" | "20120317167" | "20130231947" | "20140142403" | "20140240122" | "20140336796" | "20150217163" | "20150220883" | "20160062582" | "20160235374" | "20170053542" | "20170300186" | "20170357520" | "20180064356" | "20180329584" | "9712629" | "9813642").PN.	US-PGPUB; USPAT	OR	OFF	2019/03/15 16:45
S4	12	("20050079905" | "20080300110" | "20110066051" | "20110307821" | "20130110264" | "20130115583" | "20130332286" | "20140275852" | "20160058336" | "20160058337" | "20170237694" | "8784115").PN.	US-PGPUB; USPAT	OR	OFF	2019/03/15 16:45
S5	44	(soli near3 christopher).in.	US-PGPUB; USPAT	OR	OFF	2019/03/15 17:24
S6	4361	600/301.ccls.	US-PGPUB; USPAT	OR	OFF	2019/03/15 17:25
S7	0	A61B5/02,0404.ccls.	US-PGPUB; USPAT	OR	OFF	2019/03/15 17:26
S8	2601	A61B5/02,0404.cpc..	US-PGPUB; USPAT	OR	OFF	2019/03/15 17:26
S9	2601	A61B5/02,0404.cpc.	US-PGPUB; USPAT	OR	OFF	2019/03/15 17:26
S10	2755	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/03/15 17:27
S11	0	G0F1/163.cpc.	US-PGPUB; USPAT	OR	OFF	2019/03/15 17:27
S12	6379	G06F1/163.cpc.	US-PGPUB; USPAT	OR	OFF	2019/03/15 17:27
S13	25570	G06F3/017,0485.cpc.	US-PGPUB; USPAT	OR	OFF	2019/03/15 17:27
S14	2755	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/03/15 17:28
S15	1264	G06T13/80	US-PGPUB; USPAT	OR	OFF	2019/03/15 17:28

S16	2465	G06T13/80.cpc.	US-PGPUB; USPAT	OR	OFF	2019/03/15 17:28
S17	230715	G06F3/0$.cpc. and @pd<"20180312"	US-PGPUB; USPAT	OR	OFF	2019/03/15 17:29
S18	30	S17 and workout same start same list	US-PGPUB; USPAT	OR	OFF	2019/03/15 17:30
S19	14	S17 and workout same quick with start	US-PGPUB; USPAT	OR	OFF	2019/03/15 17:32
S20	3	S17 and workout same quick with start same (menu$1 or list$1 or option$1)	US-PGPUB; USPAT	OR	OFF	2019/03/15 17:34
S21	0	"2016058336".pn.	US-PGPUB; USPAT	OR	OFF	2019/03/26 17:54
S22	1	"20160058336".pn.	US-PGPUB; USPAT	OR	OFF	2019/03/26 17:55
S23	2613	A61B5/02,0404.cpc.	US-PGPUB; USPAT	OR	OFF	2019/03/26 18:02
S24	2772	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/03/26 18:02
S25	6433	G06F1/163.cpc.	US-PGPUB; USPAT	OR	OFF	2019/03/26 18:02
S26	25703	G06F3/017,0485.cpc.	US-PGPUB; USPAT	OR	OFF	2019/03/26 18:02
S27	2772	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/03/26 18:02
S28	2470	G06T13/80.cpc.	US-PGPUB; USPAT	OR	OFF	2019/03/26 18:02
S29	38031	S23 or S24 or S25 or S26 or S27 or S28	US-PGPUB; USPAT	OR	OFF	2019/03/26 18:02
S30	32084	S29 and @pd<"20180312"	US-PGPUB; USPAT	OR	OFF	2019/03/26 18:03
S31	8771	S30 and second same first same interface$1	US-PGPUB; USPAT	OR	OFF	2019/03/26 18:03
S32	448	S30 and second same first same interface$1 same record$4	US-PGPUB; USPAT	OR	OFF	2019/03/26 18:03
S33	0	S30 and second same first same interface$1 same record$4 near5 progress$4	US-PGPUB; USPAT	OR	OFF	2019/03/26 18:04
S34	3	S30 and second same first same interface$1 same record$4 same progress$4	US-PGPUB; USPAT	OR	OFF	2019/03/26 18:09
S35	0	S30 and second with interface$1 same first with interface$1 same record$4 same progress$4	US-PGPUB; USPAT	OR	OFF	2019/03/26 18:10
S36	3	S30 and second with interface$1 and first with interface$1 same record$4 same progress$4	US-PGPUB; USPAT	OR	OFF	2019/03/26 18:11
S37	49	("20100076331" | "20160292373" | "20170032168" | "20130114100" | "20140081118" | "20140240349" | "20160301761" | "20170000359" | "20170274149" | "20180000426" | "20180049696" | "20190025995" | "20190034049" | "20190034050" | "9801562" | "20040017300" | "20060152372" | "20080200312" |	US-PGPUB; USPAT	OR	OFF	2019/04/01 12:52

		"20100010832" | "20110098928" | "20110245623" | "20120317167" | "20130231947" | "20140142403" | "20140240122" | "20140336796" | "20150217163" | "20150220883" | "20160062582" | "20160235374" | "20170053542" | "20170300186" | "20170357520" | "20180064356" | "20180329584" | "9712629" | "9813642" | "20050079905" | "20080300110" | "20110066051" | "20110307821" | "20130110264" | "20130115583" | "20130332286" | "20140275852" | "20160058336" | "20160058337" | "20170237694" | "8784115").PN.				
S38	24	S37 and shape$1	US-PGPUB; USPAT	OR	OFF	2019/04/01 13:14
S39	4	S37 and shape$1 near3 chang$4	US-PGPUB; USPAT	OR	OFF	2019/04/01 13:14
S40	2618	A61B5/02,0404.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/01 13:22
S41	2776	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/01 13:22
S42	6445	G06F1/163.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/01 13:22
S43	25749	G06F3/017,0485.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/01 13:22
S44	2776	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/01 13:22
S45	2477	G06T13/80.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/01 13:22
S46	38105	S40 or S41 or S42 or S43 or S44 or S45	US-PGPUB; USPAT	OR	OFF	2019/04/01 13:22
S47	75	S46 and @pd<"20180312" and chang$4 near3 shape$1 same threshold$1	US-PGPUB; USPAT	OR	OFF	2019/04/01 13:22
S48	55	S46 and @pd<"20180312" and chang$4 near3 shape$1 same threshold$1 same (display$1 or image$1 or animation$1)	US-PGPUB; USPAT	OR	OFF	2019/04/01 13:22
S49	3	S46 and @pd<"20180312" and chang$4 near3 shape$1 same threshold$1 same (display$1 or image$1 or animation$1) same (wave$4)	US-PGPUB; USPAT	OR	OFF	2019/04/01 13:23
S50	7	S46 and @pd<"20180312" and chang$4 near3 shape$1 same threshold$1 same (display$1 or image$1 or animation$1) same (graph$4)	US-PGPUB; USPAT	OR	OFF	2019/04/01 13:25
S51	0	S46 and @pd<"20180312" and chang$4 near3 shape$1 same threshold$1 same (display$1 or image$1 or animation$1) same transition$1	US-PGPUB; USPAT	OR	OFF	2019/04/01 13:26
S52	2	S46 and @pd<"20180312" and transition$3 near3 shape$1 same	US-PGPUB; USPAT	OR	OFF	2019/04/01 13:27

		threshold$1 same (display$1 or image$1 or animation$1)				
S53	15	S46 and @pd<"20180312" and transition$3 near3 shape$1 same (display$1 or image$1 or animation$1) same heart$1	US-PGPUB; USPAT	OR	OFF	2019/04/01 13:54
S54	42230	S40 or S41 or S42 or S43 or S44 or S45 or 600/301.ccls.	US-PGPUB; USPAT	OR	OFF	2019/04/01 14:15
S55	15	(S46 or 600/301.ccls.)and @pd<"20180312" and transition$3 near3 shape$1 same (display$1 or image$1 or animation$1) same heart$1	US-PGPUB; USPAT	OR	OFF	2019/04/01 14:15
S56	8064	(S46 or 600/301.ccls.)and @pd<"20180312" and chang$4near3 shape$1 same (display$1 or image$1 or animation$1) same heart$1	US-PGPUB; USPAT	OR	OFF	2019/04/01 14:16
S57	130	(S46 or 600/301.ccls.)and @pd<"20180312" and chang$4 near3 shape$1 same (display$1 or image$1 or animation$1) same heart$1	US-PGPUB; USPAT	OR	OFF	2019/04/01 14:16
S58	1	(S46 or 600/301.ccls.)and @pd<"20180312" and chang$4 near3 shape$1 same (display$1 or image$1 or animation$1) same heart$1 same (threshold$1 or detect$4)	US-PGPUB; USPAT	OR	OFF	2019/04/01 14:16
S59	41	(A61B5/$.cpc. or G06F9/$.cpc. or G06F1/$.cpc. or G06T13/$.cpc. or 600/301.ccls.)and @pd<"20180312" and chang$4 near3 shape$1 same (display$1 or image$1 or animation$1) same heart$1 same (threshold$1 or detect$4)	US-PGPUB; USPAT	OR	OFF	2019/04/01 14:20
S60	15	(A61B5/$.cpc. or G06F9/$.cpc. or G06F1/$.cpc. or G06T13/$.cpc. or 600/301.ccls.)and @pd<"20180312" and chang$4 near3 shape$1 same (display$1 or image$1 or animation$1) same heart$1 with (threshold$1 or detect$4)	US-PGPUB; USPAT	OR	OFF	2019/04/01 14:36
S61	41	(A61B5/$.cpc. or G06F9/$.cpc. or G06F1/$.cpc. or G06T13/$.cpc. or 600/301.ccls.)and @pd<"20180312" and (chang$4 or transition$4 or morph$4) near3 shape$1 same (display$1 or image$1 or animation$1) same heart$1 with (threshold$1 or detect$4 or measur$5)	US-PGPUB; USPAT	OR	OFF	2019/04/01 14:53
S62	71	(A61B5/$.cpc. or G06F9/$.cpc. or G06F1/$.cpc. or G06T13/$.cpc. or 600/301.ccls.)and @pd<"20180312" and (chang$4 or transition$4 or morph$4) near3 shape$1 same (display$1 or image$1 or animation$1) same heart$1 with (threshold$1 or detect$4 or measur$5 or read$4 or process$4)	US-PGPUB; USPAT	OR	OFF	2019/04/02 10:20
S63	2619	A61B5/02,0404.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/02 10:45
S64	2779	G06F9/453.cpc.	US-PGPUB;	OR	OFF	2019/04/02

			USPAT			10:45
S65	6462	G06F1/163.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/02 10:45
S66	25789	G06F3/017,0485.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/02 10:45
S67	2779	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/02 10:45
S68	2481	G06T13/80.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/02 10:45
S69	38165	S63 or S64 or S65 or S66 or S67 or S68	US-PGPUB; USPAT	OR	OFF	2019/04/02 10:45
S70	32084	S69 and @pd< "20180312"	US-PGPUB; USPAT	OR	OFF	2019/04/02 10:45
S71	32084	S70	US-PGPUB; USPAT	OR	OFF	2019/04/02 10:45
S72	2448	S70 and (electrocardiogram or ecg or ekg)	US-PGPUB; USPAT	OR	OFF	2019/04/02 10:46
S73	1281	S70 and (electrocardiogram or ecg or ekg) and threshold	US-PGPUB; USPAT	OR	OFF	2019/04/02 10:46
S74	1073	S70 and (electrocardiogram or ecg or ekg) and threshold$1 and (shape$1 or image$1 or animation$1)	US-PGPUB; USPAT	OR	OFF	2019/04/02 10:47
S75	569	S70 and (electrocardiogram or ecg or ekg) and threshold$1 and (shape$1 or image$1 or animation$1) same interface$1	US-PGPUB; USPAT	OR	OFF	2019/04/02 10:48
S76	121	S70 and (electrocardiogram or ecg or ekg) and threshold$1 and (shape$1 or image$1 or animation$1) same interface$1 with (chang$3 or switch$3 or transition$4)	US-PGPUB; USPAT	OR	OFF	2019/04/02 10:48
S77	86	S70 and (electrocardiogram or ecg or ekg) and threshold$1 and (shape$1 or image$1 or animation$1) same interface$1 with (chang$3 or switch$3 or transition$4) same (display$1 or screen$1)	US-PGPUB; USPAT	OR	OFF	2019/04/02 10:50
S78	1	S70 and (electrocardiogram or ecg or ekg) and threshold$1 and (shape$1 or image$1 or animation$1) same interface$1 with (chang$3 or switch$3 or transition$4) same (display$1 or screen$1) same waveform$1	US-PGPUB; USPAT	OR	OFF	2019/04/02 10:51
S79	259	S70 and (electrocardiogram or ecg or ekg) and waveform same display	US-PGPUB; USPAT	OR	OFF	2019/04/02 11:02
S80	5	S70 and (electrocardiogram or ecg or ekg) and waveform same display same (shape$1 or image$1) near3 (chang$4 or transition$4)	US-PGPUB; USPAT	OR	OFF	2019/04/02 11:03
S81	5	S70 and (electrocardiogram or ecg or ekg) and waveform same display same (shape$1 or image$1) near3 (chang$4 or transition$4 or return$4)	US-PGPUB; USPAT	OR	OFF	2019/04/02 11:12
S82	2135	fitbit	US-PGPUB; USPAT	OR	OFF	2019/04/02 11:13
S83	13	G06T13/80.cpc. and @pd< "20180312" and threshold same shape$1 same	US-PGPUB; USPAT	OR	OFF	2019/04/02 11:18

		(chang$4 or return$4 or transition$4 or morph$4)				
S84	1	G06T13/80.cpc. and @pd<"20180312" and threshold same shape$1 same (chang$4 or return$4 or transition$4 or morph$4) same detect$5	US-PGPUB; USPAT	OR	OFF	2019/04/02 11:15
S85	789	G06T13/80.cpc. and @pd<"20180312" and (threshold$1 or criteria)	US-PGPUB; USPAT	OR	OFF	2019/04/02 11:39
S86	282	G06T13/80.cpc. and @pd<"20180312" and progress$4 with (indicat$4 or animat$4 or shape$1)	US-PGPUB; USPAT	OR	OFF	2019/04/02 11:54
S87	40	G06T13/80.cpc. and @pd<"20180312" and progress$4 with (indicat$4 or animat$4 or shape$1) same (measur$4 or monitor$4 or detect$4)	US-PGPUB; USPAT	OR	OFF	2019/04/02 11:55
S88	3	G06T13/80.cpc. and @pd<"20180312" and progress$4 with (indicat$4 or animat$4 or shape$1) same (measur$4 or monitor$4 or detect$4) same (return$4 or revert$4)	US-PGPUB; USPAT	OR	OFF	2019/04/02 11:58
S89	0	G06T13/80.cpc. and @pd<"20180312" and progress$4 with (indicat$4 or animat$4 or shape$1) same (measur$4 or monitor$4 or detect$4) same (previous)	US-PGPUB; USPAT	OR	OFF	2019/04/02 11:58
S90	40	G06T13/80.cpc. and @pd<"20180312" and progress$4 with (indicat$4 or animat$4 or shape$1) same (measur$4 or monitor$4 or detect$4)	US-PGPUB; USPAT	OR	OFF	2019/04/02 13:20
S91	40	G06T13/80.cpc. and @pd<"20180312" and progress$4 with (indicat$4 or animat$4 or shape$1) same (measur$4 or monitor$4 or detect$4 or switch$4 near3 back)	US-PGPUB; USPAT	OR	OFF	2019/04/02 13:25
S92	50	G06T13/$.cpc. and @pd<"20180312" and (time or period$1 or duration$1) same (threshold or criteria) same (revert$3 or switch$3)	US-PGPUB; USPAT	OR	OFF	2019/04/02 13:31
S93	116	G06T13/$.cpc. and @pd<"20180312" and (time or period$1 or duration$1) same (threshold or criteria) same (revert$3 or switch$3 or return$4)	US-PGPUB; USPAT	OR	OFF	2019/04/02 15:28
S94	1034	G06T$.cpc. and @pd<"20180312" and (time or period$1 or duration$1) same (threshold or criteria) same (revert$3 or switch$3)	US-PGPUB; USPAT	OR	OFF	2019/04/02 15:43
S95	147	G06T$.cpc. and @pd<"20180312" and (time or period$1 or duration$1) same (threshold or criteria) same (revert$3 or switch$3) and (heart or rhythm or ekg or ecg or electrocardiogram)	US-PGPUB; USPAT	OR	OFF	2019/04/02 15:43
S96	7	G06T$.cpc. and @pd<"20180312" and (time or period$1 or duration$1) same (threshold or criteria) same (revert$3 or switch$3) and (heart or rhythm or ekg or ecg or electrocardiogram) same (proximity or contact)	US-PGPUB; USPAT	OR	OFF	2019/04/02 16:15
S97	15	G06T$.cpc. and @pd<"20180312" and (time or period$1 or duration$1) same	US-PGPUB; USPAT	OR	OFF	2019/04/02 16:16

		(threshold or criteria) same (revert$3 or switch$3) same (proximity or contact) and (heart or rhythm or ekg or ecg or electrocardiogram)				
S98	2619	A61B5/02,0404.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/02 16:21
S99	2779	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/02 16:21
S100	6462	G06F1/163.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/02 16:21
S101	25789	G06F3/017,0485.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/02 16:21
S102	2779	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/02 16:21
S103	2481	G06T13/80.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/02 16:21
S104	38165	S98 or S99 or S100 or S101 or S102 or S103	US-PGPUB; USPAT	OR	OFF	2019/04/02 16:21
S105	25776	S104 and @pd<"20180312" and (mode$1 or setting$1 or image$1 or shape$1 or animation$1) same (display$1 or screen$1)	US-PGPUB; USPAT	OR	OFF	2019/04/02 16:21
S106	1067	S104 and @pd<"20180312" and (mode$1 or setting$1 or image$1 or shape$1 or animation$1 or menu$1 or interface$1) same (display$1 or screen$1) same (heart or rhythm$1)	US-PGPUB; USPAT	OR	OFF	2019/04/02 16:26
S107	221	S104 and @pd<"20180312" and (mode$1 or setting$1 or image$1 or shape$1 or animation$1 or menu$1 or interface$1) same (display$1 or screen$1) same (heart or rhythm$1) same (transition$3 or revert$3 or chang$3)	US-PGPUB; USPAT	OR	OFF	2019/04/02 16:27
S108	177	S104 and @pd<"20180312" and (mode$1 or setting$1 or image$1 or shape$1 or animation$1 or menu$1 or interface$1) with (transition$3 or revert$3 or chang$3 or switch$3) same (display$1 or screen$1) same (heart or rhythm$1)	US-PGPUB; USPAT	OR	OFF	2019/04/02 16:28
S109	13	S104 and @pd<"20180312" and (mode$1 or setting$1 or image$1 or shape$1 or animation$1 or menu$1 or interface$1) with (transition$3 or revert$3 or chang$3 or switch$3) same (display$1 or screen$1) same (heart or rhythm$1) same (criteria or criterion or threshold$1)	US-PGPUB; USPAT	OR	OFF	2019/04/02 16:29
S110	15	S104 and @pd<"20180312" and (mode$1 or setting$1 or image$1 or shape$1 or animation$1 or menu$1 or interface$1) with (transition$3 or revert$3 or chang$3 or switch$3) same (display$1 or screen$1) same (heart or rhythm$1 or ecg or electrocardiogram$1 or ekg) same (criteria or criterion or threshold$1)	US-PGPUB; USPAT	OR	OFF	2019/04/02 16:29
S111	96	A61B5/$.cpc. and @pd<"20180312"	US-PGPUB;	OR	OFF	2019/04/02

		and (time or period$1 or duration$1) same (threshold or criteria) same (revert$3 or switch$3) same (proximity or contact) and (heart or rhythm or ekg or ecg or electrocardiogram)	USPAT			16:31
S112	11103	A61B5/742-745.cpc. and @pd<"20180312"	US-PGPUB; USPAT	OR	OFF	2019/04/05 15:56
S113	18	A61B5/742-745.cpc. and @pd<"20180312" and (time or period$1 or duration$1) same (threshold or criteria) same (revert$3 or switch$3) same (proximity or contact) and (heart or rhythm or ekg or ecg or electrocardiogram)	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:01
S114	22	S112 and (mode$1 or setting$1 or image$1 or shape$1 or animation$1 or menu$1 or interface$1) with (transition$3 or revert$3 or chang$3 or switch$3) same (display$1 or screen$1) same (heart or rhythm$1 or ecg or electrocardiogram$1 or ekg) same (criteria or criterion or threshold$1)	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:06
S115	20	S112 and (mode$1 or image$1 or shape$1 or animation$1 or menu$1 or interface$1) with (transition$3 or revert$3 or chang$3 or switch$3) same (display$1 or screen$1) same (heart or rhythm$1 or ecg or electrocardiogram$1 or ekg) same (criteria or criterion or threshold$1)	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:28
S116	56	S112 and (mode$1 or image$1 or shape$1 or animation$1 or menu$1 or interface$1 or indicat$4) with (transition$3 or revert$3 or chang$3 or switch$3) same (display$1 or screen$1) same (heart or rhythm$1 or ecg or electrocardiogram$1 or ekg) same (criteria or criterion or threshold$1)	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:28
S117	7	S112 and (mode$1 or image$1 or shape$1 or animation$1 or menu$1 or interface$1 or indicat$4) with (transition$3 or revert$3 or chang$3 or switch$3) with (detect$4) same (display$1 or screen$1) same (heart or rhythm$1 or ecg or electrocardiogram$1 or ekg) same (criteria or criterion or threshold$1)	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:29
S118	0	S112 and (mode$1 or image$1 or shape$1 or animation$1 or menu$1 or interface$1 or indicat$4) with (transition$3 or revert$3 or chang$3 or switch$3) with (prior or previous) with (detect$4) same (display$1 or screen$1) same (heart or rhythm$1 or ecg or electrocardiogram$1 or ekg) same (criteria or criterion or threshold$1)	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:33
S119	12	("20130114100" | "20140081118" |	US-PGPUB;	OR	OFF	2019/04/05

		"20140240349" | "20160301761" | "20170000359" | "20170274149" | "20180000426" | "20180049696" | "20190025995" | "20190034049" | "20190034050" | "9801562").PN.	USPAT			16:35
S120	22	("20040017300" | "20060152372" | "20080200312" | "20100010832" | "20110098928" | "20110245623" | "20120317167" | "20130231947" | "20140142403" | "20140240122" | "20140336796" | "20150217163" | "20150220883" | "20160062582" | "20160235374" | "20170053542" | "20170300186" | "20170357520" | "20180064356" | "20180329584" | "9712629" | "9813642").PN.	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:35
S121	12	("20050079905" | "20080300110" | "20110066051" | "20110307821" | "20130110264" | "20130115583" | "20130332286" | "20140275852" | "20160058336" | "20160058337" | "20170237694" | "8784115").PN.	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:35
S122	46	S119 or S120 or S121	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:35
S123	8	S122 and (mode$1 or setting$1 or image$1 or shape$1 or animation$1 or menu$1 or interface$1) with (transition$3 or revert$3 or chang$3 or switch$3) same (display$1 or screen$1) same (criteria or criterion or threshold$1)	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:36
S124	1	S122 and (mode$1 or setting$1 or image$1 or shape$1 or animation$1 or menu$1 or interface$1) with (transition$3 or revert$3 or chang$3 or switch$3)with (prior or previous) same (display$1 or screen$1) same (criteria or criterion or threshold$1)	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:39
S125	2	S112 and (mode$1 or setting$1 or image$1 or shape$1 or animation$1 or menu$1 or interface$1) with (transition$3 or revert$3 or chang$3 or switch$3)with (prior or previous) same (display$1 or screen$1) same (criteria or criterion or threshold$1)	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:44
S126	812	S112 and contact$3 with detect$4 same (image$1 or mode$1 or animation$1 or interface$1 or shape$1)	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:50
S127	0	S112 and contact$3 with detect$4 same (image$1 or mode$1 or animation$1 or interface$1 or shape$1) same (revert$5)	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:52
S128	258	S112 and contact$3 with detect$4 same (image$1 or mode$1 or animation$1 or interface$1 or shape$1) same (revert$5 or prior or previous)	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:52
S129	2	S112 and contact$3 with detect$4 with(image$1 or mode$1 or	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:53

		animation$1 or interface$1 or shape$1) same (revert$5 or prior or previous)				
S130	2	S112 and contact$3 with detect$4 with (image$1 or mode$1 or animation$1 or interface$1 or shape$1) same (revert$5 or prior or previous)	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:53
S131	16044	A61B5/74$.cpc. and @pd<"20180312"	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:55
S132	4	S131 and contact$3 with detect$4 with (image$1 or mode$1 or animation$1 or interface$1 or shape$1) same (revert$5 or prior or previous)	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:55
S133	132	S131 and contact$3 with detect$4 with (image$1 or mode$1 or animation$1 or interface$1 or shape$1) same signal	US-PGPUB; USPAT	OR	OFF	2019/04/05 16:58
S134	13	S131 and contact$3 with detect$4 with (image$1 or mode$1 or animation$1 or interface$1 or shape$1) same signal same waveform	US-PGPUB; USPAT	OR	OFF	2019/04/05 17:00
S135	1108	A61B5/742-745.cpc. and @pd<"20180312" and waveform same heart	US-PGPUB; USPAT	OR	OFF	2019/04/05 17:02
S136	140	A61B5/742-745.cpc. and @pd<"20180312" and waveform same heart same threshold	US-PGPUB; USPAT	OR	OFF	2019/04/05 17:02
S137	89	A61B5/742-745.cpc. and @pd<"20180312" and waveform same heart same threshold same (display$1 or interface$1 or indicat$3 or menu$1 or shape$1 or image$1 or avatar$1 or picture$1)	US-PGPUB; USPAT	OR	OFF	2019/04/05 17:03
S138	641	A61B5/742-745.cpc. and @pd<"20180312" and progress same detect$4	US-PGPUB; USPAT	OR	OFF	2019/04/05 17:06
S139	107	A61B5/742-745.cpc. and @pd<"20180312" and progress same detect$4 same (return$4 or ((switch$4 or chang$4) adj back) or previous or prior)	US-PGPUB; USPAT	OR	OFF	2019/04/05 17:09
S140	30	A61B5/742-745.cpc. and @pd<"20180312" and progress with detect$4 same (return$4 or ((switch$4 or chang$4) adj back) or previous or prior)	US-PGPUB; USPAT	OR	OFF	2019/04/05 17:09
S141	30	A61B5/742-745.cpc. and @pd<"20180312" and progress with detect$4 same (return$4 or ((switch$4 or chang$4) adj back) or previous or prior)	US-PGPUB; USPAT	OR	OFF	2019/04/05 17:10
S142	210	A61B5/742-745.cpc. and @pd<"20180312" and previous near3 screen	US-PGPUB; USPAT	OR	OFF	2019/04/05 17:13
S143	6	A61B5/742-745.cpc. and @pd<"20180312" and previous near3 screen with progress	US-PGPUB; USPAT	OR	OFF	2019/04/05 17:13

S144	1244	A61B5/742-745.cpc. and @pd<"20180312" and previous same detect$4	US-PGPUB; USPAT	OR	OFF	2019/04/05 17:14
S145	97	A61B5/742-745.cpc. and @pd<"20180312" and previous with (screen$4 or image$1 or interface$1 or shape$4) same detect$4	US-PGPUB; USPAT	OR	OFF	2019/04/05 17:15
S146	32	A61B5/742-745.cpc. and @pd<"20180312" and previous with (screen$4 or image$1 or interface$1 or shape$4) with detect$4	US-PGPUB; USPAT	OR	OFF	2019/04/05 17:17
S147	41	G06T13/80.cpc. and @pd<"20180312" and previous with (screen$4 or image$1 or interface$1 or shape$4) with detect$4	US-PGPUB; USPAT	OR	OFF	2019/04/05 17:20
S148	46	S122 and (interface$1 or page$1 or image$1 or shape$1 or screen$1)	US-PGPUB; USPAT	OR	OFF	2019/04/05 17:28
S149	33	S122 and (interface$1 or page$1 or image$1 or shape$1 or screen$1) same (detect$4)	US-PGPUB; USPAT	OR	OFF	2019/04/05 17:33
S150	12	("20130114100" | "20140081118" | "20140240349" | "20160301761" | "20170000359" | "20170274149" | "20180000426" | "20180049696" | "20190025995" | "20190034049" | "20190034050" | "9801562").PN.	US-PGPUB; USPAT	OR	OFF	2019/04/08 10:50
S151	22	("20040017300" | "20060152372" | "20080200312" | "20100010832" | "20110098928" | "20110245623" | "20120317167" | "20130231947" | "20140142403" | "20140240122" | "20140336796" | "20150217163" | "20150220883" | "20160062582" | "20160235374" | "20170053542" | "20170300186" | "20170357520" | "20180064356" | "20180329584" | "9712629" | "9813642").PN.	US-PGPUB; USPAT	OR	OFF	2019/04/08 10:50
S152	12	("20050079905" | "20080300110" | "20110066051" | "20110307821" | "20130110264" | "20130115583" | "20130332286" | "20140275852" | "20160058336" | "20160058337" | "20170237694" | "8784115").PN.	US-PGPUB; USPAT	OR	OFF	2019/04/08 10:50
S153	46	S150 or S151 or S152	US-PGPUB; USPAT	OR	OFF	2019/04/08 10:50
S154	2	S153 and (interface$1 or page$1 or image$1 or shape$1 or screen$1) same (detect$4) same count$1down	US-PGPUB; USPAT	OR	OFF	2019/04/08 10:50
S155	0	S153 and (electrocardiogram or ecg) same (detect$4) same count$1down	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:00
S156	0	S153 and (electrocardiogram or ecg or heart) same (detect$4) same count$1down	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:01
S157	0	A61B5/742-745.cpc. and @pd<"20180312" and previous with (screen$4 or image$1 or interface$1 or shape$4) with detect$4 same count$1down	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:01
S158	0	A61B5/742-745.cpc. and	US-PGPUB;	OR	OFF	2019/04/08

		@pd<"20180312" and previous with (screen$4 or image$1 or interface$1 or shape$4) with detect$4 same (count$1down or countdown)	USPAT			11:03
S159	5	A61B5/742-745.cpc. and @pd<"20180312" and previous with (screen$4 or image$1 or interface$1 or shape$4) same (count$1down or countdown)	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:04
S160	93	A61B5/742-745.cpc. and @pd<"20180312" and (screen$4 or image$1 or interface$1 or shape$4) same (count$1down or countdown)	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:11
S161	7	A61B5/742-745.cpc. and @pd<"20180312" and (screen$4 or image$1 or interface$1 or shape$4) same (count$1down or countdown) same (electrocardiogram or ecg or ekg or waveform or heart)	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:13
S162	861	A61B5/742-745.cpc. and @pd<"20180312" and detect$4 same home	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:33
S163	318	A61B5/742-745.cpc. and @pd<"20180312" and detect$4 same (home or home$1screen) same (ecg or ekg or electrocardiogram or wave$1form$1 or heart)	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:34
S164	68	A61B5/742-745.cpc. and @pd<"20180312" and detect$4 same (home or home$1screen) same (ecg or ekg or electrocardiogram or wave$1form$1 or heart) same (chang$4 or switch$4 or trigger$4)	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:35
S165	0	A61B5/742-745.cpc. and @pd<"20180312" and detect$4 same (home$1screen) same (ecg or ekg or electrocardiogram or wave$1form$1 or heart) same (chang$4 or switch$4 or trigger$4)	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:36
S166	0	A61B5/742-745.cpc. and @pd<"20180312" and detect$4 same (home$1screen) same (ecg or ekg or electrocardiogram or wave$1form$1 or heart)	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:36
S167	0	A61B5/742-745.cpc. and @pd<"20180312" and (home$1screen) same (ecg or ekg or electrocardiogram or wave$1form$1 or heart)	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:36
S168	5	A61B5/742-745.cpc. and @pd<"20180312" and (home$1screen)	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:36
S169	2626	A61B5/02,0404.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:37
S170	2800	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:37
S171	6499	G06F1/163.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:37
S172	25830	G06F3/017,0485.cpc.	US-PGPUB;	OR	OFF	2019/04/08

			USPAT			11:37
S173	2800	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:37
S174	2487	G06T13/80.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:37
S175	38266	S169 or S170 or S171 or S172 or S173 or S174	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:37
S176	51	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (home$1screen)	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:37
S177	2	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (home$1screen) same automatic$5	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:44
S178	0	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (home$1screen) same threshold$1	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:45
S179	2	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (home$1screen) and (waveform or ecg or ekg or electrocardiogram or heart)	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:46
S180	1	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (home$1screen) same(waveform or ecg or ekg or electrocardiogram or heart)	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:46
S181	4705482	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (screen or interface or app) same(waveform or ecg or ekg or electrocardiogram or heart) pre$1determined	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:57
S182	5071	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (screen or interface or app) same(waveform or ecg or ekg or electrocardiogram or heart) pre$1determinedsame	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:57
S183	328	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (screen or interface or app) same(waveform or ecg or ekg or electrocardiogram or heart) same pre$1determined	US-PGPUB; USPAT	OR	OFF	2019/04/08 11:57
S184	98	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (screen or interface or app) same(waveform or ecg or ekg or electrocardiogram or heart) same pre$1determined near5 time	US-PGPUB; USPAT	OR	OFF	2019/04/08 12:00
S185	18	(US-20150185967-$ or US-20100062905-$ or US-20160058336-$ or US-20170053542-$ or US-20160109961-$ or US-20160196635-$ or US-20120283587-$ or US-20160174857-$ or US-20170300186-$ or US-20180049696-$ or US-20170086693-$ or US-20170202496-$ or US-20170075551-$ or US-20180011686-$ or US-20150288944-$ or US-20140266776-$ or US-20160058313-$).did. or (US-9813642-	US-PGPUB; USPAT	OR	OFF	2019/04/08 14:28

		$).did.				
S186	12	S185 and (contact or touch) near3 sensor$1	US-PGPUB; USPAT	OR	OFF	2019/04/08 14:29
S187	26777	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (shapes or objects)	US-PGPUB; USPAT	OR	OFF	2019/04/08 14:36
S188	2936	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and mov$4 near3 (shapes or objects)	US-PGPUB; USPAT	OR	OFF	2019/04/08 14:36
S189	414	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and mov$4 near3 (shapes or objects) and heart	US-PGPUB; USPAT	OR	OFF	2019/04/08 14:36
S190	27	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and mov$4 near3 (shapes or objects) same heart	US-PGPUB; USPAT	OR	OFF	2019/04/08 14:37
S191	54	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (mov$4 or animat$4) near3 (shapes or objects) same heart	US-PGPUB; USPAT	OR	OFF	2019/04/08 14:39
S192	45	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (mov$4 or animat$4) near3 (shapes or objects) with (heart or wave$1 or waveform$1 or wave$1form or rhythm)	US-PGPUB; USPAT	OR	OFF	2019/04/08 14:51
S193	22	(US-20150185967-$ or US-20100062905-$ or US-20160058336-$ or US-20170053542-$ or US-20160109961-$ or US-20160196635-$ or US-20120283587-$ or US-20160174857-$ or US-20170300186-$ or US-20180049696-$ or US-20170086693-$ or US-20170202496-$ or US-20170075551-$ or US-20180011686-$ or US-20150288944-$ or US-20140266776-$ or US-20160058313-$ or US-20100017489-$ or US-20060149144-$ or US-20050010117-$).did. or (US-9813642-$ or US-8321006-$).did.	US-PGPUB; USPAT	OR	OFF	2019/04/08 16:22
S194	13	S193 and (alert$4 or notif$7)	US-PGPUB; USPAT	OR	OFF	2019/04/08 16:23
S195	11	S193 and (motion or movement or activity) near3 sens$4	US-PGPUB; USPAT	OR	OFF	2019/04/08 16:46
S196	0	S193 and (motion or movement or activity) near3 sens$4 with (reduc$4 or decreas$4)	US-PGPUB; USPAT	OR	OFF	2019/04/08 16:47
S197	7	S193 and (motion or movement or activity) with (reduc$4 or decreas$4)	US-PGPUB; USPAT	OR	OFF	2019/04/08 16:48
S198	5	S193 and (motion or movement or activity) with (reduc$4 or decreas$4) same (sens$4 or detect$4)	US-PGPUB; USPAT	OR	OFF	2019/04/08 16:48
S199	8	S193 and (motion or movement or activity or less) with (reduc$4 or decreas$4) same (sens$4 or detect$4)	US-PGPUB; USPAT	OR	OFF	2019/04/08 16:48
S200	5	S193 and (motion or movement or activity) with (reduc$4 or decreas$4 or less) same (sens$4 or detect$4)	US-PGPUB; USPAT	OR	OFF	2019/04/08 16:49

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S201	3	S193 and (motion or movement or activity) near5 (reduc$4 or decreas$4 or less) same (sens$4 or detect$4)	US-PGPUB; USPAT	OR	OFF	2019/04/08 16:50
S202	2900	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (motion or movement or activity) near5 (reduc$4 or decreas$4 or less) same (sens$4 or detect$4)	US-PGPUB; USPAT	OR	OFF	2019/04/08 16:51
S203	11	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (motion or movement or activity) near5 (reduc$4 or decreas$4 or less) with (recommend$5 or advis$4) same (sens$4 or detect$4)	US-PGPUB; USPAT	OR	OFF	2019/04/08 16:52
S204	8	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (motion or movement or activity) near5 (reduc$4 or decreas$4) with (recommend$5 or advis$4) same (sens$4 or detect$4)	US-PGPUB; USPAT	OR	OFF	2019/04/08 16:53
S205	57	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (motion or movement or activity) near5 (reduc$4 or decreas$4) with (recommend$5 or advis$4 or alert$4 or notif$7) same (sens$4 or detect$4)	US-PGPUB; USPAT	OR	OFF	2019/04/08 16:56
S206	33	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (motion or movement or activity) near5 (reduc$4 or decreas$4) near5 (recommend$5 or advis$4 or alert$4 or notif$7) same (sens$4 or detect$4)	US-PGPUB; USPAT	OR	OFF	2019/04/08 16:56
S207	555	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (motion or movement or activity) with threshold with (reduc$4 or decrease$4 or stop$4)	US-PGPUB; USPAT	OR	OFF	2019/04/08 16:59
S208	387937	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (motion or movement or activity) neart5 (reduc$4 or decrease$4 or stop$4) with threshold	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:00
S209	282	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (motion or movement or activity) near5 (reduc$4 or decrease$4 or stop$4) with threshold	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:00
S210	32	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and measur$5 with (activit$4 or accelerometer$1 or motion or movement) with sensor with (stop)\	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:06
S211	32	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and measur$5 with (activit$4 or accelerometer$1 or motion or movement) with sensor with (stop)	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:06
S212	10	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and measur$5 with (activit$4 or accelerometer$1 or motion or movement) with sensor with	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:07

		(reduce with (movement or motion))				
S213	73	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (instruct$4 or alert$4 or order$4 or notif$4 or tell$4) near3 (reduc$4 or stop$4 or decreas$4) near5 movement	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:09
S214	83	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (instruct$4 or alert$4 or order$4 or notif$4 or tell$4) near3 (reduc$4 or stop$4 or decreas$4) near5 mov$4	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:09
S215	0	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (instruct$4 or alert$4 or order$4 or notif$4 or tell$4) near3 (reduc$4 or stop$4 or decreas$4) near5 mov$4 with (measur$4)	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:13
S216	0	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (instruct$4 or alert$4 or order$4 or notif$4 or tell$4) near3 (reduc$4 or stop$4 or decreas$4) near5 mov$4 with (measur$5)	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:13
S217	3	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (instruct$4 or alert$4 or order$4 or notif$4 or tell$4) near3 (reduc$4 or stop$4 or decreas$4) near5 mov$4 same (heart or ekg or ecg or electrocardiogram or rhythm or wave$1form)	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:14
S218	25	(US-20150185967-$ or US-20100062905-$ or US-20160058336-$ or US-20170053542-$ or US-20160109961-$ or US-20160196635-$ or US-20120283587-$ or US-20160174857-$ or US-20170300186-$ or US-20180049696-$ or US-20170086693-$ or US-20170202496-$ or US-20170075551-$ or US-20180011686-$ or US-20150288944-$ or US-20140266776-$ or US-20160058313-$ or US-20100017489-$ or US-20060149144-$ or US-20050010117-$ or US-20170188841-$ or US-20170303844-$ or US-20150081210-$).did. or (US-9813642-$ or US-8321006-$).did.	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:30
S219	2	S218 and (button$1 or input$1 or press$4) same wait	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:31
S220	5	S218 and (button$1 or input$1 or press$4) same progress	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:33
S221	784	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (button$1 or press$4 or input$1) with wait	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:35
S222	23	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (button$1 or press$4 or input$1) with wait with (measur$5 or progress)	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:35
S223	60	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and maintain with	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:45

		contact$4 same (ecg or ekg or electrocardiogram or heart or rhythm)				
S224	34	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and maintain near3 contact$4 same (ecg or ekg or electrocardiogram or heart or rhythm)	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:45
S225	40	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (alert$4 or notif$4 or warn$4 or order4 or tell$4) with contact with (ecg or ekg or electrocardiogram or heart or rhythm)	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:47
S226	11	(A61B5/742-745.cpc. or S175) and @pd<"20180312" and (alert$4 or notif$4 or warn$4 or order4 or tell$4) near3 contact with (ecg or ekg or electrocardiogram or heart or rhythm)	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:53
S227	26	(US-20150185967-$ or US-20100062905-$ or US-20160058336-$ or US-20170053542-$ or US-20160109961-$ or US-20160196635-$ or US-20120283587-$ or US-20160174857-$ or US-20170300186-$ or US-20180049696-$ or US-20170086693-$ or US-20170202496-$ or US-20170075551-$ or US-20180011686-$ or US-20150288944-$ or US-20140266776-$ or US-20160058313-$ or US-20100017489-$ or US-20060149144-$ or US-20050010117-$ or US-20170188841-$ or US-20170303844-$ or US-20150081210-$ or US-20160235325-$).did. or (US-9813642-$ or US-8321006-$).did.	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:57
S228	18	S227 and activat$4	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:59
S229	3	S227 and activat$4 with heart adj rate$1	US-PGPUB; USPAT	OR	OFF	2019/04/08 17:59
S230	0	S227 and activat$4 with heart adj rate$1 near3 (high or fast)	US-PGPUB; USPAT	OR	OFF	2019/04/08 18:01
S231	26	S227 andheart adj rate$1 near3 (high or fast)	US-PGPUB; USPAT	OR	OFF	2019/04/08 18:01
S232	1	S227 and heart adj rate$1 near3 (high or fast)	US-PGPUB; USPAT	OR	OFF	2019/04/08 18:01
S233	18	S227 and heart adj rate$1	US-PGPUB; USPAT	OR	OFF	2019/04/08 18:07
S234	5	S227 and heart adj rate$1 same (notification$4 or alert$4 or message$1)	US-PGPUB; USPAT	OR	OFF	2019/04/08 18:07
S235	26	(US-20150185967-$ or US-20100062905-$ or US-20160058336-$ or US-20170053542-$ or US-20160109961-$ or US-20160196635-$ or US-20120283587-$ or US-20160174857-$ or US-20170300186-$ or US-20180049696-$ or US-20170086693-$ or US-20170202496-$ or US-20170075551-$ or US-20180011686-$ or US-20150288944-$ or US-20140266776-$ or US-	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:30

		20160058313-$ or US-20100017489-$ or US-20060149144-$ or US-20050010117-$ or US-20170188841-$ or US-20170303844-$ or US-20150081210-$ or US-20160235325-$).did. or (US-9813642-$ or US-8321006-$).did.				
S236	15	S235 and threshold	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:34
S237	8	S235 and threshold same (heart near3 rate$1)	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:40
S238	0	S235 and threshold same (heart near3 rate$1) same (accelerometer)	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:43
S239	2	S235 and threshold same (heart near3 rate$1) same (touch or contact)	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:43
S240	15	S235 and threshold	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:44
S241	12	S235 and threshold same (measur$5 or detect$4)	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:46
S242	6	S235 and threshold same (measur$5 or detect$4) same (begin$5 or start$5)	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:47
S243	5	S235 and threshold same (measur$5 or detect$4) with (begin$5 or start$5)	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:49
S244	1	S235 and threshold same (measur$5 or detect$4) with (begin$5 or start$5) same (heart near3 rate)	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:53
S245	2628	A61B5/02,0404.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:54
S246	2805	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:54
S247	6514	G06F1/163.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:54
S248	25872	G06F3/017,0485.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:54
S249	2805	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:54
S250	2490	G06T13/80.cpc.	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:54
S251	38328	S245 or S246 or S247 or S248 or S249 or S250	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:54
S252	166	(A61B5/742-745.cpc. or S251) and @pd<"20180312" and threshold same (measur$5 or detect$4) with (begin$5 or start$5) same (heart near3 rate)	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:54
S253	20	(A61B5/742-745.cpc. or S251) and @pd<"20180312" and threshold with (measur$5 or detect$4) with (begin$5 or start$5) with (heart near3 rate)	US-PGPUB; USPAT	OR	OFF	2019/04/09 10:57
S254	15	A61B5/742-745.cpc. and @pd<"20180312" and threshold with (measur$5 or detect$4) with (begin$5 or start$5) with (heart near3 rate)	US-PGPUB; USPAT	OR	OFF	2019/04/09 11:05
S255	2	A61B5/742-745.cpc. and @pd<"20180312" and threshold with (measur$5 or detect$4) with (begin$5	US-PGPUB; USPAT	OR	OFF	2019/04/09 11:06

		or start$5) same (chang$4 or switch$4) with (screen$1 or interface$1 or app$1)				
S256	5	A61B5/742-745.cpc. and @pd<"20180312" and threshold with (measur$5 or detect$4) with (begin$5 or start$5) same (chang$4 or switch$4) with (screen$1 or interface$1 or app$1 or page$1 or menu$1 or window$1)	US-PGPUB; USPAT	OR	OFF	2019/04/09 11:06
S257	6	A61B5/742-745.cpc. and @pd<"20180312" and threshold with (measur$5 or detect$4) with (begin$5 or start$5) same (chang$4 or switch$4) with (screen$1 or interface$1 or app$1 or page$1 or menu$1 or window$1 or shape$1 or image$1 or animation$1)	US-PGPUB; USPAT	OR	OFF	2019/04/09 11:09
S258	6	A61B5/742-745.cpc. and @pd<"20180312" and threshold with (measur$5) with (begin$5 or start$5) same (chang$4 or switch$4) with (screen$1 or interface$1 or app$1 or page$1 or menu$1 or window$1 or shape$1 or image$1 or animation$1)	US-PGPUB; USPAT	OR	OFF	2019/04/09 11:19
S259	7	A61B5/742-745.cpc. and @pd<"20180312" and threshold with (measur$5) with (begin$5 or start$5) with heart near3 rate	US-PGPUB; USPAT	OR	OFF	2019/04/09 11:23
S260	2	A61B5/742-745.cpc. and @pd<"20180312" and home-screen	US-PGPUB; USPAT	OR	OFF	2019/04/09 15:11
S261	23909	A61B5/742-745.cpc. and @pd<"20180312" and home$1screen or home$1page	US-PGPUB; USPAT	OR	OFF	2019/04/09 15:11
S263	0	A61B5/742-745.cpc. and @pd<"20180312" and (home$1screen or home$1page) same heart	US-PGPUB; USPAT	OR	OFF	2019/04/09 15:12
S264	88	A61B5/742-745.cpc. and @pd<"20180312" and (home$1screen or home$1page)	US-PGPUB; USPAT	OR	OFF	2019/04/09 17:05
S265	1	"20150099991".pn. and sensor	US-PGPUB; USPAT	OR	OFF	2019/04/10 10:29
S266	613	A61B5/742-745.cpc. and @pd<"20180312" and ecg same (object$1 or shape$1)	US-PGPUB; USPAT	OR	OFF	2019/04/10 10:45
S267	1684	A61B5/742-745.cpc. and @pd<"20180312" and (ecg or electrocardiogram or ekg or heart) same (object$1 or shape$1)	US-PGPUB; USPAT	OR	OFF	2019/04/10 10:46
S268	137	A61B5/742-745.cpc. and @pd<"20180312" and (ecg or electrocardiogram or ekg or heart) with (object$1 or shape$1) with (transition$3 or animat$4 or chang$4 or morph$4)	US-PGPUB; USPAT	OR	OFF	2019/04/10 10:47
S269	0	A61B5/742-745.cpc. and @pd<"20180312" and notification with heart near3 shape$1	US-PGPUB; USPAT	OR	OFF	2019/04/10 10:52
S270	0	A61B5/742-745.cpc. and	US-PGPUB;	OR	OFF	2019/04/10

		@pd<"20180312" and (alert$1 or notif$7 or messag$1) with heart near3 shape$1	USPAT			10:53
S271	265	A61B5/742-745.cpc. and @pd<"20180312" and heart near3 shape$1	US-PGPUB; USPAT	OR	OFF	2019/04/10 10:53
S272	18	A61B5/742-745.cpc. and @pd<"20180312" and heart near3 shape$1 with display	US-PGPUB; USPAT	OR	OFF	2019/04/10 10:53
S273	38	A61B5/742-745.cpc. and @pd<"20180312" and (intermediate or interstitial) with shape	US-PGPUB; USPAT	OR	OFF	2019/04/10 11:21
S274	0	A61B5/742-745.cpc. and @pd<"20180312" and (intermediate or interstitial) with shape same animat$4	US-PGPUB; USPAT	OR	OFF	2019/04/10 11:21
S275	0	A61B5/742-745.cpc. and @pd<"20180312" and (intermediate or interstitial) with shape same heart	US-PGPUB; USPAT	OR	OFF	2019/04/10 11:22
S276	17	A61B5/742-745.cpc. and @pd<"20180312" and (intermediate or interstitial) with (shape$1 or object$1) same display	US-PGPUB; USPAT	OR	OFF	2019/04/10 11:23
S277	28	(US-20150185967-$ or US-20100062905-$ or US-20160058336-$ or US-20170053542-$ or US-20160109961-$ or US-20160196635-$ or US-20120283587-$ or US-20160174857-$ or US-20170300186-$ or US-20180049696-$ or US-20170086693-$ or US-20170202496-$ or US-20170075551-$ or US-20180011686-$ or US-20150288944-$ or US-20140266776-$ or US-20160058313-$ or US-20100017489-$ or US-20060149144-$ or US-20050010117-$ or US-20170188841-$ or US-20170303844-$ or US-20150081210-$ or US-20160235325-$ or US-20150099991-$ or US-20170007159-$).did. or (US-9813642-$ or US-8321006-$).did.	US-PGPUB; USPAT	OR	OFF	2019/04/10 13:55
S278	5	S277 and (slow$4 or reduc$4 or stop$4) near5 (move$4 or motion)	US-PGPUB; USPAT	OR	OFF	2019/04/10 13:56
S279	130	A61B5/742-745.cpc. and @pd<"20180312" and (slow$4 or stop$4 or reduc$4) near5 (mov$7 or motion) same threshold	US-PGPUB; USPAT	OR	OFF	2019/04/10 14:02
S280	4	A61B5/742-745.cpc. and @pd<"20180312" and (display$4 or messag$4 or alert$4 or notif$7) near5 (slow$4 or stop$4 or reduc$4) near5 (mov$7 or motion) same threshold	US-PGPUB; USPAT	OR	OFF	2019/04/10 14:08
S281	0	A61B5/$.cpc. and @pd<"20180312" and (display$4 or messag$4 or alert$4 or notif$7) near5 (slow$4 or stop$4 or reduc$4) near5 (mov$7 or motion) with threshold with (record$4 or measur$4)	US-PGPUB; USPAT	OR	OFF	2019/04/10 14:10
S282	0	A61B5/$.cpc. and @pd<"20180312"	US-PGPUB;	OR	OFF	2019/04/10

		and (display$4 or messag$4 or alert$4 or notif$7) near5 (slow$4 or stop$4 or reduc$4) near5 (mov$7 or motion) same threshold with (record$4 or measur$4)	USPAT			14:11
S283	0	A61B5/$.cpc. and @pd<"20180312" and (display$4 or messag$4 or alert$4 or notif$7) near5 (slow$4 or stop$4 or reduc$4) near5 (mov$7 or motion) same threshold same (record$4 or measur$4)	US-PGPUB; USPAT	OR	OFF	2019/04/10 14:12
S284	41	A61B5/$.cpc. and @pd<"20180312" and (display$4 or messag$4 or alert$4 or notif$7) near5 (slow$4 or stop$4 or reduc$4) near5 (mov$7 or motion) same threshold	US-PGPUB; USPAT	OR	OFF	2019/04/10 14:13
S285	29	(US-20150185967-$ or US-20100062905-$ or US-20160058336-$ or US-20170053542-$ or US-20160109961-$ or US-20160196635-$ or US-20120283587-$ or US-20160174857-$ or US-20170300186-$ or US-20180049696-$ or US-20170086693-$ or US-20170202496-$ or US-20170075551-$ or US-20180011686-$ or US-20150288944-$ or US-20140266776-$ or US-20160058313-$ or US-20100017489-$ or US-20060149144-$ or US-20050010117-$ or US-20170188841-$ or US-20170303844-$ or US-20150081210-$ or US-20160235325-$ or US-20150099991-$ or US-20170007159-$).did. or (US-20170127997-$).did. or (US-9813642-$ or US-8321006-$).did.	US-PGPUB; USPAT	OR	OFF	2019/04/10 14:26
S286	0	S285 and (button$1 or input$1) with progress with interrupt$4	US-PGPUB; USPAT	OR	OFF	2019/04/10 14:26
S287	1	S285 and (button$1 or input$1) with progress	US-PGPUB; USPAT	OR	OFF	2019/04/10 14:26
S288	0	A61B5/742-745.cpc. and @pd<"20180312" and (button$1 or input$1) with interrupt$4 with "do adj not"	US-PGPUB; USPAT	OR	OFF	2019/04/10 14:27
S289	0	A61B5/742-745.cpc. and @pd<"20180312" and (button$1 or input$1) with "do adj not"	US-PGPUB; USPAT	OR	OFF	2019/04/10 14:27
S290	241	A61B5/742-745.cpc. and @pd<"20180312" and (button$1 or input$1) with interrupt	US-PGPUB; USPAT	OR	OFF	2019/04/10 14:27
S291	4	A61B5/742-745.cpc. and @pd<"20180312" and (button$1 or input$1) with prevent$4 with repeat$4	US-PGPUB; USPAT	OR	OFF	2019/04/10 14:30
S292	23	A61B5/742-745.cpc. and @pd<"20180312" and (button$1 or input$1) with (stop$4 or prevent$4) with repeat$4	US-PGPUB; USPAT	OR	OFF	2019/04/10 14:32
S293	32	A61B5/742-745.cpc. and @pd<"20180312" and (warn$4 or	US-PGPUB; USPAT	OR	OFF	2019/04/10 14:44

		alert$4 or notif$7 or messag$4) with threshold with maintain$4				
S294	0	A61B5/742-745.cpc. and @pd<"20180312" and (warn$4 or alert$4 or notif$7 or messag$4) with threshold with maintain$4 with contact$4	US-PGPUB; USPAT	OR	OFF	2019/04/10 14:46
S295	363	A61B5/742-745.cpc. and @pd<"20180312" and (warn$4 or alert$4 or notif$7 or messag$4) with threshold with (maintain$4 or continu$4)	US-PGPUB; USPAT	OR	OFF	2019/04/10 14:46
S296	6	A61B5/742-745.cpc. and @pd<"20180312" and (warn$4 or alert$4 or notif$7 or messag$4) with threshold with (maintain$4 or continu$4) near3 measur$4	US-PGPUB; USPAT	OR	OFF	2019/04/10 14:49
S297	14	A61B5/$.cpc. and @pd<"20180312" and (warn$4 or alert$4 or notif$7 or messag$4) with threshold with (maintain$4 or continu$4) near3 measur$4	US-PGPUB; USPAT	OR	OFF	2019/04/10 14:50
S298	30	(US-20150185967-$ or US-20100062905-$ or US-20160058336-$ or US-20170053542-$ or US-20160109961-$ or US-20160196635-$ or US-20120283587-$ or US-20160174857-$ or US-20170300186-$ or US-20180049696-$ or US-20170086693-$ or US-20170202496-$ or US-20170075551-$ or US-20180011686-$ or US-20150288944-$ or US-20140266776-$ or US-20160058313-$ or US-20100017489-$ or US-20060149144-$ or US-20050010117-$ or US-20170188841-$ or US-20170303844-$ or US-20150081210-$ or US-20160235325-$ or US-20150099991-$ or US-20170007159-$).did. or (US-20170127997-$ or US-20170172522-$).did. or (US-9813642-$ or US-8321006-$).did.	US-PGPUB; USPAT	OR	OFF	2019/04/10 15:15
S299	27	S298 and communicat$4	US-PGPUB; USPAT	OR	OFF	2019/04/10 15:16
S300	25	S298 and communicat$4 with (external or computer)	US-PGPUB; USPAT	OR	OFF	2019/04/10 15:19
S301	2748	A61B5/02,0404.cpc.	US-PGPUB; USPAT	OR	OFF	2019/07/12 15:39
S302	2935	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/07/12 15:39
S303	7061	G06F1/163.cpc.	US-PGPUB; USPAT	OR	OFF	2019/07/12 15:39
S304	26985	G06F3/017,0485.cpc.	US-PGPUB; USPAT	OR	OFF	2019/07/12 15:39
S305	2935	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/07/12 15:39
S306	2577	G06T13/80.cpc.	US-PGPUB; USPAT	OR	OFF	2019/07/12 15:39

S307	40153	S301 or S302 or S303 or S304 or S305 or S306	US-PGPUB; USPAT	OR	OFF	2019/07/12 15:39
S308	32186	S307 and @pd<"20180312"	US-PGPUB; USPAT	OR	OFF	2019/07/12 15:39
S309	119	S308 and (interface$1 or menu$1) with previous same (threshold or criteri$3)	US-PGPUB; USPAT	OR	OFF	2019/07/12 15:39
S310	0	S308 and (interface$1 or menu$1) with previous same (threshold or criteri$3) same period with longer	US-PGPUB; USPAT	OR	OFF	2019/07/12 15:40
S311	15	S308 and (interface$1 or menu$1) with previous same (threshold or criteri$3) same time with longer	US-PGPUB; USPAT	OR	OFF	2019/07/12 15:41
S312	0	S308 and (interface$1 or menu$1) with previous same (threshold or criteri$3) same interval with longer	US-PGPUB; USPAT	OR	OFF	2019/07/12 15:41
S313	2835	A61B5/02,0404.cpc.	US-PGPUB; USPAT	OR	OFF	2019/10/21 16:58
S314	3066	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/10/21 16:58
S315	7578	G06F1/163.cpc.	US-PGPUB; USPAT	OR	OFF	2019/10/21 16:58
S316	28113	G06F3/017,0485.cpc.	US-PGPUB; USPAT	OR	OFF	2019/10/21 16:58
S317	3066	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/10/21 16:58
S318	2690	G06T13/80.cpc.	US-PGPUB; USPAT	OR	OFF	2019/10/21 16:58
S319	41946	S313 or S314 or S315 or S316 or S317 or S318	US-PGPUB; USPAT	OR	OFF	2019/10/21 16:58
S320	32231	S319 and @pd<"20180312"	US-PGPUB; USPAT	OR	OFF	2019/10/21 16:58
S321	3489	S320 and (period or interval) with first same second	US-PGPUB; USPAT	OR	ON	2019/10/21 16:58
S322	3230	S320 and (period or interval) with first same second with (period or interval)	US-PGPUB; USPAT	OR	ON	2019/10/21 17:00
S323	1235	S320 and (period or interval) with first same second with (period or interval) same (interface or mode or image or menu)	US-PGPUB; USPAT	OR	ON	2019/10/21 17:02
S324	81	S320 and (period or interval) with first same second with (period or interval) same (interface or mode or image or menu) same duration	US-PGPUB; USPAT	OR	ON	2019/10/21 17:07
S325	25	S320 and (period or interval) with first same second with (period or interval) same (interface or mode or image or menu) same duration with (longer or shorter)	US-PGPUB; USPAT	OR	ON	2019/10/21 17:11
S326	14	S320 and (period or interval) near4 first same second near4 (period or interval) same (interface or mode or image or menu) same duration with (longer or shorter)	US-PGPUB; USPAT	OR	ON	2019/10/21 17:13
S327	11	S320 and duration with (period or interval) near4 first same second	US-PGPUB; USPAT	OR	ON	2019/10/21 17:30

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		near4 (period or interval) same (interface or mode or image or menu) same duration with (longer or shorter)				
S328	8	S320 and duration with (period or interval) near4 first same second near4 (period or interval) same (interface or mode or image or menu) same duration with (longer or shorter) same (threshold or criteri$4)	US-PGPUB; USPAT	OR	ON	2019/10/21 17:31
S329	2839	A61B5/02,0404.cpc.	US-PGPUB; USPAT	OR	OFF	2019/10/22 11:13
S330	3067	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/10/22 11:13
S331	7596	G06F1/163.cpc.	US-PGPUB; USPAT	OR	OFF	2019/10/22 11:13
S332	28156	G06F3/017,0485.cpc.	US-PGPUB; USPAT	OR	OFF	2019/10/22 11:13
S333	3067	G06F9/453.cpc.	US-PGPUB; USPAT	OR	OFF	2019/10/22 11:13
S334	2695	G06T13/80.cpc.	US-PGPUB; USPAT	OR	OFF	2019/10/22 11:13
S335	42011	S329 or S330 or S331 or S332 or S333 or S334	US-PGPUB; USPAT	OR	OFF	2019/10/22 11:13
S336	32231	S335 and @pd<"20180312"	US-PGPUB; USPAT	OR	OFF	2019/10/22 11:13
S337	8	S336 and duration with (period or interval) near4 first same (second or following or subsequent or previous) near4 (period or interval) same (interface or mode or image or menu) same duration with (longer or shorter) same (threshold or criteri$4)	US-PGPUB; USPAT	OR	ON	2019/10/22 11:13
S338	9	S336 and (second or following or subsequent or previous) near4 (period or interval) same (interface or mode or image or menu) same duration with (longer or shorter) same (threshold or criteri$4)	US-PGPUB; USPAT	OR	ON	2019/10/22 11:17
S339	59	S336 and (second or following or subsequent or previous) near4 (greater or longer or more) near5 (period or interval or duration) same (interface or mode or image or menu) same (threshold or criteri$4)	US-PGPUB; USPAT	OR	ON	2019/10/22 11:25
S340	400	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (second or following or subsequent or previous) near4 (greater or longer or more) near5 (period or interval or duration) same (interface or mode or image or menu) same (threshold or criteri$4)	US-PGPUB; USPAT	OR	ON	2019/10/22 14:08
S341	0	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (second or following or subsequent or previous) near4 (greater or longer or more) near5 (period or interval or duration) same	US-PGPUB; USPAT	OR	ON	2019/10/22 14:31

		(interface or mode or image or menu) same (threshold or criteri$4) same biometric				
S342	4	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (second or following or subsequent or previous) near4 (greater or longer or more) near5 (period or interval or duration) same (interface or mode or image or menu) same (threshold or criteri$4) same (biometric or pulse or heart adj rate)	US-PGPUB; USPAT	OR	ON	2019/10/22 14:31
S343	1	"20140143678".pn.	US-PGPUB; USPAT	OR	ON	2019/10/22 14:39
S344	6	"20080058626".pn. or "20120029303".pn. or "20120038651".pn. or "20130065569".pn. or "20150216448".pn. or "20160301794".pn.	US-PGPUB; USPAT	OR	ON	2019/10/22 14:45
S345	3	"5642731".pn. or "9026927".pn. or "10175781".pn.	US-PGPUB; USPAT	OR	ON	2019/10/22 15:03
S346	1	"20170274267".pn.	US-PGPUB; USPAT	OR	ON	2019/10/22 15:04
S347	48053	"20150297134".pn. or "20160132046".pn. ot "20160302666".pn.	US-PGPUB; USPAT	OR	ON	2019/10/22 15:08
S348	3	"20150297134".pn. or "20160132046".pn. or "20160302666".pn.	US-PGPUB; USPAT	OR	ON	2019/10/22 15:10
S349	8	"20060235319".pn. or "20120065480".pn. or "20120245447".pn. or "20130158416".pn. or "201303174380".pn. or "20140038781".pn. or "20160346607".pn. or "20170354845".pn. or "20180189077".pn.	US-PGPUB; USPAT	OR	ON	2019/10/22 15:14
S350	3	"20190274562".pn. or "20190274564".pn. or "20190274565".pn.	US-PGPUB; USPAT	OR	ON	2019/10/22 15:16
S351	3	S335 and @pd<"20180312" and (gui or image or shape) adj (chang$3 or transition$4) same heart adj rate	US-PGPUB; USPAT	OR	OFF	2019/10/22 15:23
S352	3	S335 and @pd<"20180312" and (gui or image or shape) adj (chang$3 or transition$4) same heart adj rate	US-PGPUB; USPAT	OR	ON	2019/10/22 15:23
S353	3	S335 and @pd<"20180312" and (interface or menu or graphic or picture or progress or gui or image or shape) adj (chang$3 or transition$4) same heart adj rate	US-PGPUB; USPAT	OR	ON	2019/10/22 15:27
S354	3	S335 and @pd<"20180312" and (interface or menu or graphic or picture or progress or gui or image or shape) adj (chang$3 or transition$4 or transform or intermediate) same heart adj rate	US-PGPUB; USPAT	OR	ON	2019/10/22 15:31

S355	0	A61B5/$.cpc. and @pd<"20180312" and do adj eot adj move	US-PGPUB; USPAT	OR	OFF	2019/10/22 15:34
S356	0	A61B5/$.cpc. and @pd<"20180312" and do adj "not" adj move	US-PGPUB; USPAT	OR	OFF	2019/10/22 15:34
S357	0	S336 and do adj "not" adj move	US-PGPUB; USPAT	OR	OFF	2019/10/22 15:34
S358	73	S336 and heart adj rate same gui	US-PGPUB; USPAT	OR	OFF	2019/10/22 15:39
S359	468	S336 and heart adj rate same (gui or image or shape or interface or menu or message) same (record$4 or progress$4)	US-PGPUB; USPAT	OR	ON	2019/10/22 15:42
S360	16	S336 and heart adj rate same (gui or image or shape or interface or menu or message) same (record$4 or progress$4) same duration$1	US-PGPUB; USPAT	OR	ON	2019/10/22 15:43
S361	21	S336 and heart adj rate same (gui or image or shape or interface or menu or message) same (measur$4 or record$4 or progress$4) same duration$1	US-PGPUB; USPAT	OR	ON	2019/10/22 15:44
S362	1	"20150109105".pn.	US-PGPUB; USPAT	OR	ON	2019/10/22 15:53
S363	1	"20130215042".pn.	US-PGPUB; USPAT	OR	ON	2019/10/22 15:55
S364	1	"20130215042".pn. and error	US-PGPUB; USPAT	OR	ON	2019/10/22 16:02
S365	28	S336 and heart adj rate same (gui or image or shape or interface or menu or message) same duration same (longer or shorter or less or more or greater or less$4)	US-PGPUB; USPAT	OR	ON	2019/10/22 16:08
S366	55	G06T13/80.cpc. and @pd<"20180312" and progress$4 with (indicat$4 or animat$4 or shape$1 or gui or image$1 or picture$1) same (measur$4 or monitor$4 or detect$4 or record$4)	US-PGPUB; USPAT	OR	ON	2019/10/22 16:17
S367	1	G06T13/80.cpc. and @pd<"20180312" and progress$4 with (indicat$4 or animat$4 or shape$1 or gui or image$1 or picture$1) same (measur$4 or monitor$4 or detect$4 or record$4) same heart adj rate	US-PGPUB; USPAT	OR	ON	2019/10/22 16:19
S368	1	G06T13/80.cpc. and @pd<"20180312" and progress$4 with (indicat$4 or animat$5 or shape$1 or gui or image$1 or picture$1) same (measur$4 or monitor$4 or detect$4 or record$4) same heart adj rate	US-PGPUB; USPAT	OR	ON	2019/10/22 16:23
S369	0	G06T13/80.cpc. and @pd<"20180312" and progress$4 with (indicat$4 or animat$5 or shape$1 or gui or image$1 or picture$1) same (measur$4 or monitor$4 or detect$4 or record$4) same heart adj rate and error$1	US-PGPUB; USPAT	OR	ON	2019/10/22 16:23
S370	1	G06T13/80.cpc. and @pd<"20180312"	US-PGPUB;	OR	ON	2019/10/22

		and progress$4 with (indicat$4 or animat$5 or shape$1 or gui or image$1 or picture$1) same (measur$4 or monitor$4 or detect$4 or record$4) same heart adj rate	USPAT			16:24
S371	21	S336 and progress$4 with (indicat$4 or animat$5 or shape$1 or gui or image$1 or picture$1) same (measur$4 or monitor$4 or detect$4 or record$4) same heart adj rate	US-PGPUB; USPAT	OR	ON	2019/10/22 16:35
S372	21	S336 and progress$4 with (indicat$4 or animat$5 or shape$1 or gui or image$1 or picture$1 or object) same (measur$4 or monitor$4 or detect$4 or record$4) same heart adj rate	US-PGPUB; USPAT	OR	ON	2019/10/22 17:19
S373	21	S336 and progress$4 with (indicat$4 or animat$5 or shape$1 or gui or image$1 or picture$1 or object$1) same (measur$4 or monitor$4 or detect$4 or record$4) same heart adj rate	US-PGPUB; USPAT	OR	ON	2019/10/22 17:20
S374	1	"20030181291".pn.	US-PGPUB; USPAT	OR	ON	2019/10/22 17:28
S375	1	"20150196804".pn.	US-PGPUB; USPAT	OR	ON	2019/10/22 17:28
S376	1084	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and heart adj rate same feed$1back same display$3	US-PGPUB; USPAT	OR	ON	2019/10/22 17:45
S377	1530	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and heart adj rate same feed$1back same (display$3 or object$1 or gui or interface or menu or image or picture)	US-PGPUB; USPAT	OR	ON	2019/10/22 17:51
S378	160	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and heart adj rate same feed$1back same (display$3 or object$1 or gui or interface or menu or image or picture) same duration$1	US-PGPUB; USPAT	OR	ON	2019/10/22 17:53
S379	2	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (second or following or subsequent or previous) near5 (greater or longer or more) near5 (period or interval or duration) same (interface or mode or image or menu or gui or picture$1 or object$1 or animat$5) same (threshold or criteri$4) same (biometric or pulse or heart adj rate) same (measur$5 or record$4 or detect$4)	US-PGPUB; USPAT	OR	ON	2019/10/23 11:22
S380	247	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (second or following or subsequent or previous) near5 (greater or longer or more) near5 (period or interval or duration) same (interface or mode or image or menu	US-PGPUB; USPAT	OR	ON	2019/10/23 11:26

		or gui or picture$1 or object$1 or animat$5) same (threshold or criteri$4) same (measur$5 or record$4 or detect$4)				
S381	1	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (second or following or subsequent or previous) near5 (greater or longer or more) near5 (period or interval or duration) same (interface or mode or image or menu or gui or picture$1 or object$1 or animat$5) same (threshold or criteri$4) same (measur$5 or record$4 or detect$4) same heart adj rate$1	US-PGPUB; USPAT	OR	ON	2019/10/23 12:39
S382	9	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (second or following or subsequent or previous) near5 (greater or longer or more) near5 (period or interval or duration) same (interface or mode or image or menu or gui or picture$1 or object$1 or animat$5) same (threshold or criteri$4) same (measur$5 or record$4 or detect$4) same (heart adj rate$1 or pulse or parameter or biometric)	US-PGPUB; USPAT	OR	ON	2019/10/23 12:51
S383	1	"9224291".pn.	US-PGPUB; USPAT	OR	ON	2019/10/23 13:03
S384	6	"20080159547".pn. or "20100003951".pn. or "20130002425".pn. or "20150110277".pn. or "20150110279".pn. or "20170330297".pn.	US-PGPUB; USPAT	OR	ON	2019/10/23 13:04
S385	209310	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (interface$1 or page$1 or gui or object$1 or picture$1 or menu$1 or animat$5) same (error or correct$4)	US-PGPUB; USPAT	OR	ON	2019/10/23 13:12
S386	3064	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (interface$1 or page$1 or gui or object$1 or picture$1 or menu$1 or animat$5) same (error or correct$4) same duration	US-PGPUB; USPAT	OR	ON	2019/10/23 13:17
S387	490	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (interface$1 or page$1 or gui or object$1 or picture$1 or menu$1 or animat$5) same (error or correct$4) same duration same (heart adj rate or pulse$1)	US-PGPUB; USPAT	OR	ON	2019/10/23 13:17
S388	31	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (interface$1 or page$1 or gui or object$1 or picture$1 or menu$1 or animat$5) same (error or correct$4) same duration with (greater or longer or more) same (heart adj rate or pulse$1)	US-PGPUB; USPAT	OR	ON	2019/10/23 13:18

S389	2	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (interface$1 or page$1 or gui or object$1 or picture$1 or menu$1 or animat$5) same (error or correct$4) same duration with (greater or longer or more) same (heart adj rate)	US-PGPUB; USPAT	OR	ON	2019/10/23 13:19
S390	0	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (interface$1 or page$1 or gui or object$1 or picture$1 or menu$1 or animat$5) same (error or correct$4) same duration with (interval or period) same (heart adj rate)	US-PGPUB; USPAT	OR	ON	2019/10/23 13:25
S391	12	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (interface$1 or page$1 or gui or object$1 or picture$1 or menu$1 or animat$5) same (error or correct$4) same duration same (heart adj rate)	US-PGPUB; USPAT	OR	ON	2019/10/23 13:26
S392	7	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (interface$1 or page$1 or gui or object$1 or picture$1 or menu$1 or animat$5) same interrupt$4 same duration same (heart adj rate)	US-PGPUB; USPAT	OR	ON	2019/10/23 13:32
S393	14	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (interface$1 or page$1 or gui or object$1 or picture$1 or menu$1 or animat$5) with progress$4 same duration same (heart adj rate)	US-PGPUB; USPAT	OR	ON	2019/10/23 13:35
S394	13371	A61B5/681.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/23 14:04
S395	10281	A61B5/681.cpc. and @pd<"20180312"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/10/23 14:05
S396	3	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (interface$1 or page$1 or gui or object$1 or picture$1 or menu$1 or animat$5 or screen$1) with (error or fail$4 or interrupt$5 or disrupt$5) same duration same (heart adj rate)	US-PGPUB; USPAT	OR	ON	2019/10/23 14:09
S397	207	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (interface$1 or page$1 or gui or object$1 or picture$1 or menu$1 or animat$5 or screen$1) with (error or fail$4 or interrupt$5 or disrupt$5) same (heart adj rate)	US-PGPUB; USPAT	OR	ON	2019/10/23 14:11

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	207	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (interface$1 or page$1 or gui or object$1 or picture$1 or menu$1 or animat$5 or screen$1) with (error or fail$4 or interrupt$5 or disrupt$5) same (heart adj rate)	US-PGPUB; USPAT	OR	ON	2019/10/23 15:34
L2	14	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (interface$1 or page$1 or gui or object$1 or picture$1 or menu$1 or animat$5) with progress$4 same duration same (heart adj rate)	US-PGPUB; USPAT	OR	ON	2019/10/23 15:35
L3	2	(A61B5/$.cpc. or G06F$.cpc. or G06T13/$.cpc.) and @pd<"20180312" and (interface$1 or page$1 or gui or object$1 or picture$1 or menu$1 or animat$5) same (error or correct$4) same duration with (greater or longer or more) same (heart adj rate)	US-PGPUB; USPAT	OR	ON	2019/10/23 15:35

10/23/2019 3:38:36 PM
C:\Users\mlau2\Documents\EAST\Workspaces\16143959.wsp

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field

PTO/SB/08a (03-15)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	16/143,959
Filing Date	2018-09-27
First Named Inventor	Christopher D. SOLI
Art Unit	3792
Examiner Name	M. J. Lau
Attorney Docket Number	P38213US2/77770000489102

U.S. PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

U.S. PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	20190274562	A1	2019-09-12	Soli et al.	
	2.	20190274564	A1	2019-09-12	Soli et al.	
	3.	20190274565	A1	2019-09-12	Soli et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T[5]

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1.	Certificate of Examination received for Australian Patent Application No. 2019100222, mailed on August 29, 2019, 2 pages.	
	2.	International Search Report and Written Opinion received for PCT Patent Application No. PCT/US2019/019694, mailed on September 02, 2019, 17 pages.	
	3.	Non-Final Office Action received for U.S. Patent Application No. 16/144,849, mailed on September 17, 2019, 9 pages.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.L./

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field

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	Art Unit	3792
	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

EXAMINER SIGNATURE			
Examiner Signature	/MICHAEL J LAU/	Date Considered	10/23/2019

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.
[4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.L./

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Art Unit	3792
Examiner Name	M. J. Lau
Attorney Docket Number	P38213US2/77770000489102

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (2).

☐ See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Randy Omid/	Date (YYYY-MM-DD)	2019-09-23
Name/Print	Randy Omid	Registration Number	67,439

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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U.S. PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	20150297134	A1	2015-10-22	Albert et al.	
	2.	20160132046	A1	2016-05-12	Beoughter et al.	
	3.	20160302666	A1	2016-10-20	Shaya, Fawzi	

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1.	2017/062621	WO	A1	2017-04-13	Berardinelli, Raymond, A.		

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1.	Advisory Action received for U.S. Patent Application No. 16/144,849, mailed on August 12, 2019, 5 pages.	
	2.	Invitation to Pay Addition Fees and Partial International Search Report received for PCT Patent Application No. PCT/2019/019694, mailed on July 10, 2019, 12 pages.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.L./

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field

PTO/SB/08a (03-15)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/143,959
	Filing Date	2018-09-27
	First Named Inventor	Christopher D. SOLI
	Art Unit	3792
	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

EXAMINER SIGNATURE			
Examiner Signature	/MICHAEL J LAU/	Date Considered	10/22/2019

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Signature	/Randy Omid/	Date (YYYY-MM-DD)	2019-08-19
Name/Print	Randy Omid	Registration Number	67,439

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	1.	20170274267	A1	2017-09-28	Blahnik, Jay C.	

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	1.	Final Office Action received for U.S. Patent Application No. 16/144,849, mailed on June 07, 2019, 29 pages.	
	2.	Final Office Action received for U.S. Patent Application No. 16/144,864, mailed on May 17, 2019, 24 pages.	
	3.	Intention to Grant received for Danish Patent Application No. PA201870379, mailed on May 02, 2019, 2 pages.	
	4.	Non Final Office Action Received for U.S. Patent Application No. 16/144,864, mailed on December 18, 2018, 19 pages.	
	5.	Non-Final Office Action received for U.S. Patent Application No. 16/144,849, mailed on December 31, 2018, 28 pages.	
	6.	Office Action received for Danish Patent Application No. PA201870378, mailed on February 25, 2019, 3 pages.	
	7.	Office Action received for Danish Patent Application No. PA201870379, mailed on February 28, 2019, 3 pages.	

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	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

	8.	Office Action received for Danish Patent Application No. PA201870380, mailed on March 27, 2019, 4 pages.	
	9.	Office Action received for Danish Patent Application No. PA201870380, mailed on September 11, 2018, 9 pages.	
	10.	Search Report and Opinion received for Danish Patent Application No. PA201870378, mailed on September 10, 2018, 9 pages.	
	11.	Search Report and Opinion received for Danish Patent Application No. PA201870379, mailed on September 14, 2018, 9 pages.	

EXAMINER SIGNATURE			
Examiner Signature	/MICHAEL J LAU/	Date Considered	10/22/2019

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☐ A certification statement is not submitted herewith.

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Signature	/Randy Omid/	Date (YYYY-MM-DD)	2019-07-16
Name/Print	Randy Omid	Registration Number	67,439

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AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533

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U.S. PATENTS

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	1.	Advisory Action received for U. S. Patent Application No. 16/144,864, mailed on July 29, 2019, 6 pages.	
	2.	Decision to Grant received for Danish Patent Application No. PA201870379, mailed on July 05, 2019, 2 pages.	
	3.	Intention to Grant received for Danish Patent Application No. PA201870600, mailed on July 10, 2019, 2 pages.	

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	Art Unit	3792
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Name/Print	Randy Omid	Registration Number	67,439

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	1.	20080058626	A1	2008-03-06	Miyata et al.	
	2.	20120029303	A1	2012-02-02	Shaya, Fawzi	
	3.	20120038651	A1	2012-02-16	Case et al.	
	4.	20130065569	A1	2013-03-14	Leipzig et al.	
	5.	20150216448	A1	2015-08-06	Lotan et al.	
	6.	20160301794	A1	2016-10-13	Schlakman et al.	

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	1.	Non-Final Office Action received for U.S. Patent Application No. 16/143,909, mailed on April 19, 2019, 16 pages.	

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	Attorney Docket Number	P38213US2/77770000489102

U.S. PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

U.S. PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	20060235319	A1	2006-10-19	Belohlavek et al.	
	2.	20120065480	A1	2012-03-15	Badilini et al.	
	3.	20120245447	A1	2012-09-27	Karan et al.	
	4.	20130158416	A1	2013-06-20	Hatlestad et al.	
	5.	20130317380	A1	2013-11-28	Liley et al.	
	6.	20140038781	A1	2014-02-06	Foley et al.	
	7.	20160346607	A1	2016-12-01	Rapfogel, Jonathan	
	8.	20170354845	A1	2017-12-14	Williams et al.	
	9.	20180189077	A1	2018-07-05	Gupta et al.	

FOREIGN PATENT DOCUMENTS

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	1.	2013/109916	WO	A1	2013-07-25	Nike International Ltd.		

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1.	Final Office Action received for U.S. Patent Application No. 16/143,909, mailed on August 28, 2019, 20 pages.	
	2.	International Search Report and Written Opinion received for PCT Patent Application No. PCT/US2019/024570, mailed on August 08, 2019, 18 pages.	

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Field

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/143,959
	Filing Date	2018-09-27
	First Named Inventor	Christopher D. SOLI
	Art Unit	3792
	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

EXAMINER SIGNATURE			
Examiner Signature	/MICHAEL J LAU/	Date Considered	10/22/2019

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Signature	/Randy Omid/	Date (YYYY-MM-DD)	2019-09-12
Name/Print	Randy Omid	Registration Number	67,439

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	1.	9224291	B2	2015-12-29	Moll-Carrillo et al.	

U.S. PATENT APPLICATION PUBLICATIONS

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	1.	20080159547	A1	2008-07-03	Schuler et al.	
	2.	20100003951	A1	2010-01-07	Ray et al.	
	3.	20130002425	A1	2013-01-03	Hatch et al.	
	4.	20150110277	A1	2015-04-23	Pidgeon et al.	
	5.	20150110279	A1	2015-04-23	Tejerina, Andrew George	
	6.	20170330297	A1	2017-11-16	Cronin et al.	

FOREIGN PATENT DOCUMENTS

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	1.	03/067202	WO	A2	2003-08-14	Plantronics, Inc.		
	2.	2018/148356	WO	A1	2018-08-16	Honeywell International Inc.		

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	1.	CASELLA CEL CASELLA, "The Casella dBadge2- World's First Truly Wireless Noise Dosimeter and Airwave App!", Retrieved from URL: <https://www.youtube.com/watch?v=Xvy2fl3cgYo>, May 27, 2015, 3 pages.	
	2.	Final Office Action received for U.S. Patent Application No. 16/143,997, mailed on September 30, 2019, 16 pages.	
	3.	Final Office Action received for U.S. Patent Application No. 16/144,030, mailed on October 01, 2019, 13 pages.	

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	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

	4.	"Fitbit App", Available online at: <http://web.archive.org/web/20180114083150/https://www.fitbit.com/au/app>, January 14, 2018, 8 pages.	
	5.	MEGADEPOT, "Casella dBadge2 Noise Dosimeter", Retrieved from URL: <https://www.youtube.com/watch?v=pHiHLiYCD08>, June 12, 2018, 3 pages.	
	6.	Office Action received for Australian Patent Application No. 2019100495, mailed on September 17, 2019, 7 pages.	
	7.	STUDIOSIXDIGITAL, "Dosimeter", Retrieved from URL: <https://www.youtube.com/watch?v=CZ4jkgutp3I>, March 03, 2017, 3 pages.	

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Examiner Signature	/MICHAEL J LAU/	Date Considered	10/23/2019

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Signature	/Randy Omid/	Date (YYYY-MM-DD)	2019-10-18
Name/Print	Randy Omid	Registration Number	67,439

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U.S. PATENTS

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	1.	5642731	A	1997-07-01	Kehr, Bruce A.	
	2.	9026927	B2	2015-05-05	Brumback et al.	
	3.	10175781	B2	2019-01-08	Karagozler et al.	

U.S. PATENT APPLICATION PUBLICATIONS

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	1.	20090210078	A1	2009-08-20	Crowley, Michael J.	
	2.	20150142689	A1	2015-05-21	Squires, Blake	
	3.	20150347711	A1	2015-12-03	Soli et al.	
	4.	20160299769	A1	2016-10-13	Hunter et al.	
	5.	20170243508	A1	2017-08-24	Cheng et al.	
	6.	20180001184	A1	2018-01-04	Tran et al.	

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	1.	"Multi-Set Bar Chart", The Data Visualization Catalogue, Available Online at: https://datavizcatalogue.com/methods/multiset_barchart.html, February 08, 2014, 3 pages.	
	2.	Non-Final Office Action received for U.S. Patent Application No. 16/143,997, mailed on May 21, 2019, 15 pages.	
	3.	Office Action received for Australian Patent Application No. 2019100222, mailed on May 24, 2019, 6 pages.	
	4.	Office Action received for Danish Patent Application No. PA201870600, mailed on May 08, 2019, 3 pages.	

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	5.	EVERGREEN et al., "Bar Chart", Better Evaluation, Available Online at: https://www.betterevaluation.org/en/evaluation-options/BarChart, October 31, 2014, 8 pages.	

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AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533

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	2.	"Visual Pace Alarm app", Available Online at: https://apps.garmin.com/en-US/apps/3940f3a2-4847-4078-a911-d77422966c82, October 19, 2016, 1 page.	
	3.	TEUNMO, "Data field: Visual Pace Alarm", Garmin Forum; Available online at: https://forums.garmin.com/forum/developers/connect-iq/connect-iq-showcase/115996-data-field-visual-pace-alarm, November 17, 2015, 10 pages.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/143,959
	Filing Date	2018-09-27
	First Named Inventor	Christopher D. SOLI
	Art Unit	3792
	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

U.S. PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	9224291	B2	2015-12-29	Moll-Carrillo et al.	

U.S. PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	20080159547	A1	2008-07-03	Schuler et al.	
	2.	20100003951	A1	2010-01-07	Ray et al.	
	3.	20130002425	A1	2013-01-03	Hatch et al.	
	4.	20150110277	A1	2015-04-23	Pidgeon et al.	
	5.	20150110279	A1	2015-04-23	Tejerina, Andrew George	
	6.	20170330297	A1	2017-11-16	Cronin et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1.	03/067202	WO	A2	2003-08-14	Plantronics, Inc.		
	2.	2018/148356	WO	A1	2018-08-16	Honeywell International Inc.		

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1.	CASELLA CEL CASELLA, "The Casella dBadge2- World's First Truly Wireless Noise Dosimeter and Airwave App!", Retrieved from URL: <https://www.youtube.com/watch?v=Xvy2fl3cgYo>, May 27, 2015, 3 pages.	
	2.	Final Office Action received for U.S. Patent Application No. 16/143,997, mailed on September 30, 2019, 16 pages.	
	3.	Final Office Action received for U.S. Patent Application No. 16/144,030, mailed on October 01, 2019, 13 pages.	

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	4.	"Fitbit App", Available online at: <http://web.archive.org/web/20180114083150/https://www.fitbit.com/au/app>, January 14, 2018, 8 pages.	
	5.	MEGADEPOT, "Casella dBadge2 Noise Dosimeter", Retrieved from URL: <https://www.youtube.com/watch?v=pHiHLiYCD08>, June 12, 2018, 3 pages.	
	6.	Office Action received for Australian Patent Application No. 2019100495, mailed on September 17, 2019, 7 pages.	
	7.	STUDIOSIXDIGITAL, "Dosimeter", Retrieved from URL: <https://www.youtube.com/watch?v=CZ4jkgutp3I>, March 03, 2017, 3 pages.	

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	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

CERTIFICATION STATEMENT

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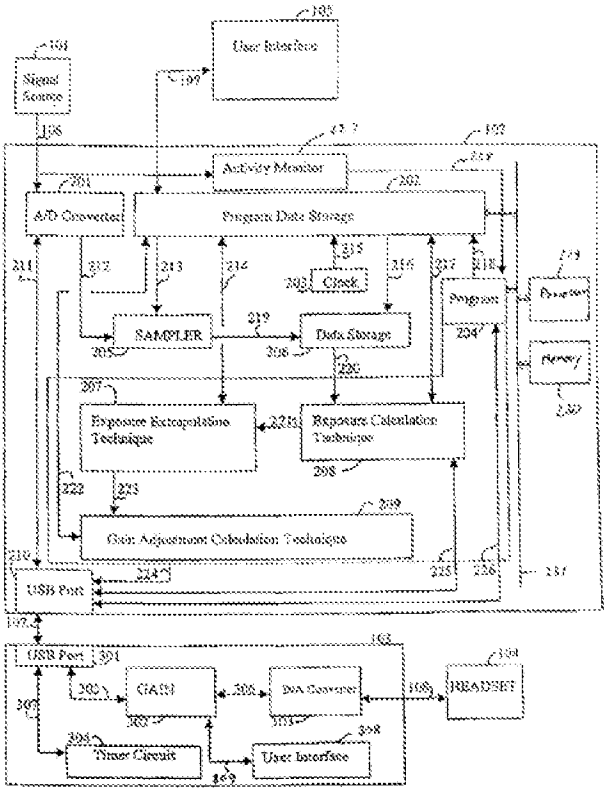
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(54) Title: HEADSET NOISE EXPOSURE DOSIMETER



(57) Abstract: A method and apparatus for monitoring and controlling exposure to noise related to a headset are described. The method includes sampling an input sound signal to produce samples of the input sound signal, calculating from these samples a headset sound level corresponding to the input sound signal, calculating cumulative exposure of a headset user to the headset sound level at a specific point in time, and calculating a gain adjustment for the input sound signal to ensure that the total sound to which the headset user will be exposed during a selected time period is within the regulatory maximum level. Advantageously, the method and apparatus of the present invention allow accurate real-time monitoring of cumulative exposure to headset noise and real-time adjustment of headset gain to ensure compliance with regulatory maximum sound exposure levels.

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HEADSET NOISE EXPOSURE DOSIMETER

BACKGROUND

Field of the Invention

This invention generally relates to a method and an apparatus for monitoring and controlling noise and, more particularly, to a method and an apparatus for monitoring and controlling exposure to noise related to a headset.

Description of Related Art

In a work environment, the accumulated amount of noise, or dose in terms of an average noise level, and the maximum level of noise to which an individual has been exposed during a workday are important to occupational safety and to the health of the individual. Industry and governmental agencies in countries throughout the world, such as the Occupational Safety and Health Administration (OSHA) in the United States, require accurate noise data measurements.

Examples of such noise data measurements include impulse noise, continuous noise, and an eight-hour time-weighted average ("TWA"). Impulse noise relates to noise of very short duration, less than a few thousandths of a second, which also repeats less than once a second. Continuous noise relates to noise that is longer in duration than impact noise, extending over seconds, minutes, or hours. Eight-hour TWA relates to the average of all levels of impulse and continuous noise to which an employee is exposed during an eight-hour workday. The OSHA maximum level for impulse noise is 140 dBSPL measured with a fast peak-hold sound level meter ("dBSPL" stands for sound pressure level, or a magnitude of pressure disturbance in air, measured in decibels, a logarithmic scale). The maximum level for continuous noise is 115 dBA (read on the slow average "A" scale). OSHA regulations limit an eight-hour TWA to 90 dBA. If employees are exposed to eight-hour TWAs between 85 and 90 dBA, OSHA requires employers to initiate a hearing conservation program which includes annual hearing tests.

Among the many noise sources that are encountered in the workplace, measuring the exposure to noise related to telephone headsets is especially problematic. Telephone headsets generate their sound levels at or in the user's ear canal rather than external to the

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user. The external sound field levels referred to in many governmental regulations cannot be directly compared to these headset sound levels.

Also, headset users in the workplace typically have jobs requiring either that they spend a substantial amount of time on the phone, or that their hands be free to perform other tasks. Since the headset user's speaker is held in or against the user's ear, the user requires more time to respond to any irritating tones or noises by moving the speaker further away from the ear than one typically does with a regular telephone handset. Exposure to impulsive sounds and short duration tones can be capped by protective devices such as forward breakdown diodes. However, there is currently no method to easily measure and control day long exposure from a headset. While telephone signals generally do not approach TWA limits, new sources of signal input are becoming available to users of telephone headsets. For example, headsets used for telephony may also be connected to a computer, allowing access to music sources. Some individuals may listen to music at levels much higher than the voice signals of typical telephone systems. As such, a headset user is exposed to varying levels of sound pressure over varying lengths of time with no capability of assuring real-time compliance with average noise exposure limits set by OSHA or other governmental regulations. Previously, remedial measures have generally been implemented after exposure to excessive noise and thus, there has been no prior method or apparatus to assure real-time compliance with threshold limits.

Therefore, there is a need in the art for a headset audio dosimeter that monitors the aforementioned data related to noise exposure levels in real time and that also controls the noise exposure to the headset user in real time to comply with governmental regulations and ensure user safety.

SUMMARY

In accordance with the present invention, a method and an apparatus are provided for monitoring and controlling exposure to noise related to a headset apparatus. A method for monitoring audio dosage from a headset includes sampling an input sound signal, calculating a headset sound level based on the input sound signal samples, and calculating the cumulative exposure of the headset user to the headset sound level at a specific point in time. These calculations are repeated to update the measure of the user's cumulative exposure to sound during the time that the user is wearing the headset. Advantageously, the

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present invention accurately monitors in real time audio dosage related to a headset apparatus.

In another aspect of the invention, a method for controlling audio dosage from a headset includes sampling an input sound signal, calculating a headset sound level from the sound signal samples, calculating real-time exposure to the headset sound level, extrapolating exposure to the end of a time period, calculating a gain adjustment for the input sound signal, and adjusting the gain of the headset to control the amplitude of the input sound signal. Advantageously, the present invention allows real-time compliance with regulatory threshold levels for exposure to noise. In addition, the invention may incorporate the ability to restrict impulse noise and short term tones to levels below regulatory limits.

In another aspect of the invention, a headset audio dosimeter includes a sampler means, a technique for calculating a headset sound level, a technique for calculating real-time exposure to the headset sound level, and a technique for calculating a gain adjustment to apply to the input sound signal.

In yet another aspect of the invention, a headset audio dosimeter system for processing an input sound signal from a source includes a sampler, a processor, a memory, a program with instructions stored in the memory that calculates not only a headset sound level but also real-time exposure to the headset sound level and a gain adjustment for the headset, gain adjust circuitry for adjusting the gain of the headset in response to the gain adjustment output by the program, and a headset apparatus.

Advantageously, the present invention accurately monitors cumulative dosage to sound related to a headset apparatus and calculates periodic gain adjustments, if necessary, to remain in compliance with regulatory threshold levels for exposure to noise.

These and other features and advantages of the present invention will be more readily apparent from the detailed description of the embodiments set forth below taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a general block diagram of an embodiment of a headset audio dosimeter system in accordance with the present invention.

FIG. 2A is a block diagram of the electrical components of a headset audio dosimeter in accordance with the present invention.

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FIG. 2B is a block diagram of the electrical components in an alternative embodiment of the headset audio dosimeter in accordance with the present invention.

DETAILED DESCRIPTION

In accordance with an embodiment of the invention, a sampled analog audio signal is digitized and processed by a computer using techniques to monitor by calculation the actual free field equivalent output of a headset receiving the analog signal. The analog audio signal is then adjusted prior to being sent to the headset apparatus to conform to legal exposure requirements.

FIG. 1 shows a simplified block diagram of one embodiment of headset audio dosimeter system 100 of the present invention. In this embodiment, a signal source 101, such as a public switched telephone network (PSTN), is operably connected to a computer 102, which receives an analog input audio signal along lead 106 from source 101. However, the invention is not limited to a PSTN signal source and may receive an audio signal from any audio signal source, for example, a CD player accessed through a personal computer, or any other signal source which can be connected to a headset.

Computer 102 calculates the cumulative real-time exposure by a headset user to the input audio signal over a time period and also calculates a gain adjustment for the input audio signal such that the cumulative sound to which the user is exposed through the headset remains in compliance with OSHA requirements or other user-selected exposure limits. The invention is not limited to a particular computer receiving and processing the input signal but any peripheral device with a processor, memory, and corresponding circuitry can be used as an alternative to computer 102, such as a telephone, a cellular telephone, a headset adapter, or a headset apparatus.

Computer 102 feeds the input audio signal and the calculated gain adjust signal into a Universal Serial Bus (USB) port, located within computer 102 in this embodiment. Digital data is sent along lead 107 to headset adapter 103, which acts as an adapter and amplifier with gain circuitry in this embodiment. Headset adapter 103 is an adapter to one headset apparatus or alternatively may act as an adapter to fit a wide range of headset apparatus.

Headset adapter 103 is operably connected to headset apparatus 104, which receives the adjusted input signal on lead 108 and converts it to an acoustic signal to be heard by the headset user. As noted above, several different versions of headset apparatus 104 may be

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used in conjunction with headset adapter 103 to give the user a choice of headset apparatus to wear. Headset apparatus 104 can be any adaptable headset apparatus such as the Encore series commercially available from Plantronics, Inc., located in Santa Cruz, California.

A user interface 105 is operably connected to computer 102 through lead 109 to allow for user adjustments to the gain adjust signal sent to headset adapter 103 and for entering calculation parameters, passwords, and other optional data. Manual interfaces such as a keyboard or mouse and visual display unit (VDU) may be used.

While communication channels within FIGS. 1, 2A, and 2B will be referred to as leads, it should be understood that what are called leads can be buses capable of carrying a plurality of signals (either digital or analog as appropriate) in parallel or can even be wireless communication channels.

FIG. 2A shows a block diagram of the electrical components used in computer 102 and headset adapter 103 in accordance with the present invention. Computer 102 includes a processor 229 and a memory 230 for processing and storing noise exposure program 204 of the present invention and related data. In one embodiment, processor 229 and memory 230 are connected to components in computer 102 through data bus 231. Processor 229 may be any suitable processor or other means for receiving digitized audio component signals and calculating sound and exposure levels. The processor or other means may also be capable of implementing lookup tables as described in further detail below. Memory 230 holding program 204 may be any suitable computer memory device such as a dynamic random access memory (DRAM) device or the hard drive of the computer. Even a read-only memory (ROM) device can be used to hold program 205 with the understanding that the program is fixed until the ROM is reprogrammed, if the ROM is of the reprogrammable type, such as an electrically erasable programmable read-only memory (EEPROM).

An analog to digital (A/D) converter 201 in computer 102 receives an analog input audio signal along lead 106 from an audio signal source 101, in this embodiment a PSTN, and converts the signal into digital words. A/D converter 201 may be any suitable means for decoding and digitizing analog audio signals. A/D converter 201 sends the digital data along lead 212 to sampler 205 which then samples the digitized input signal. Optionally, specific frequency bands may be selected by the user for sampling. In one embodiment, a constant standard sampling rate is selected, such as one second of data every sixty seconds, based upon the availability of memory. In an alternative embodiment, the sampling rate varies depending upon the activity level on the incoming lead from signal source 101. A

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faster sampling rate is utilized when signals are sent from signal source 101 above a certain threshold level and a slower sampling rate is utilized when there is minimal activity on input lead 106. Further, a threshold limit for digitizing may be used to improve computational speed by decreasing the number of samples which need to be digitized. Typically, authorities are not concerned with sound below approximately 70 dBSPL and thus, a cutoff can be established for digitizing samples only above a selected amplitude threshold.

Data storage 206, for storing the digital representations of the input audio signals taken by sampler 205, is connected to sampler 205 by lead 219. Data storage 206 is a subset of memory within computer 102 and may be any suitable computer memory device such as a DRAM device or the hard drive of the computer.

Program data storage 202 is another subset of memory within computer 102. Program data storage 202 stores the program parameters and lookup tables for use in calculations by program 204 as described in more detail below. Examples of such parameters include threshold limits for impulse noise, continuous noise, and an eight-hour time-weighted average, weighting factors (such as 3-6 dB trading relationships), durational time over which the cumulative exposure to noise of the headset user is to be calculated (typically 8 hours), and headset type. Optionally, user interface 105 is electrically connected to program data storage 202 to allow the aforementioned parameters and criteria levels to be entered by the user. In one embodiment, program data storage 202 contains preset threshold levels and a preset sampling time period when installed, which could be reset to an alternative maximum exposure level and usage time by the user or designated employee. In another embodiment, these features may be disabled or password protected upon installation to remove the ability of the headset user to over-ride or change the default parameters. Alternatively, unless prohibited, these features may be adjusted by the headset user at any time during use. Program data storage 202 may be any suitable computer memory device such as a DRAM device or the hard drive of the computer.

Upon startup of sampling or the application, the current time and date are taken from an internal clock 203 of computer 102. Clock 203 sends clock and date signals to program data storage 202 along lead 215 for later calculation of the elapsed time over which the input audio signals have been sampled. Alternatively, if an internal clock is not available, a timer circuit 304 in headset adapter 103 may be used for a time measurement. As discussed below, a time measurement is required for the exposure calculations.

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Further, signals from clock 203 can be used for reset purposes upon completion of a preselected time period for sampling. For example, if the headset audio dosimeter is set to operate from 8am to 5pm daily, signals from clock 203 allow program 204 to reset after 5pm is reached.

In one embodiment, when a specific durational time and date are not specified by the user, activity monitor 227 is used to determine when speech begins from audio signal source 101. Thus, depending upon voice signals being sent from signal source 101, activity monitor 227 sends a signal along lead 228 to program 204 to either turn on or pause timer circuit 304.

In another embodiment, program 204 may include a different pause feature. The pause feature is activated by the user through user interface 105 during periods when the user is away from the headset for prolonged periods of time, such as during a lunch break. During this time, the headset audio dosimeter will be set to record a nominal background noise level, for example, 60 dBSPL at all frequencies. Calls will be put on hold or dropped when the user pauses the program.

Program 204 of the present invention includes three techniques for calculating a real-time exposure level, extrapolating the exposure level to the end of a durational time period, and calculating a gain adjustment if necessary to comply with exposure limits. At predetermined intervals, for example 5 minutes, the sound exposure level at headset 104 is calculated and the gain adjusted if appropriate. The predetermined interval may be a preset interval upon installation of the program with an option for the user to change the interval depending upon memory constraints. Within each predetermined interval, computer 102 performs a set of numerical integrations to yield the exposure level up to that time.

As previously noted, all noise exposure regulations are based on measurements made in free field as opposed to at the eardrum. Because the ear canal is resonant to and is more sensitive to certain frequencies, a free field measurement must be translated to sound level at the eardrum and vice versa. Laboratory telephone headset sound level measurements duplicate ear canal or ear drum levels using ear simulators. By knowing the input signal, the conditioning applied by the headset with its unique coupling to the eardrum and electrical sensitivity, and the frequency response of the headset speaker on an artificial ear, such as a P.57 artificial ear, it is possible to monitor the signal and build up, over time, an average free field sound pressure level equivalent by calculation. Optionally, table readouts of the

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transfer function between electrical signal and acoustical load at the ear for the range of adaptable headsets may be used for calculating exposure.

Further, exposure calculation technique 208 used with this invention will be configurable to different countries' limits and interpretations of noise exposure based upon different weighting factors. Weighting refers to the technique of giving louder noises greater weight in calculating the average exposure. For example, OSHA uses a 5 dB trading relationship such that every increase of 5 dB is weighted twice as much in terms of exposure time. In Europe, the trading relationship is generally 3 dB for double the exposure time. Thus, a one hour exposure at 85 dBA is weighted the same as a two hour exposure at 80 dBA with a 5 dB trading relationship. In one embodiment, the user will be able to enter a trading relationship between approximately 3 dB to approximately 6 dB for doubling exposure time, depending upon jurisdictional interpretation of noise exposure.

Data from several sources is transmitted to exposure calculation technique 208 to calculate real-time noise exposure to a headset user. Exposure calculation technique 208 uses data from data storage 206 and program data storage 202. Data storage 206 provides data along lead 220 regarding the sampled input signal. Program data storage 202 provides data along lead 217 regarding calculation parameters, such as threshold levels and durational time periods. Exposure calculation technique 208 operates on the data gathered over the predetermined period using clock 203 or timer circuit 304 as a reference. In addition to the sampled data and durational time period, exposure calculation technique 208 uses data regarding the speaker frequency response and the electrical sensitivity of the headset apparatus provided through program data storage 202 along lead 217. Data regarding system gain with any gain adjustments made by the user is provided through user interface 105 and/or user interface 308.

An example of the technique for calculating real-time exposure follows. The response of a particular headset at the ear drum reference point (DRP) is known at various frequencies, stated in dBSPL/V (sound pressure level in decibels/voltage) at one-third octaves from 100 Hz to 8 kHz. The headset response is "A" weighted by adding to the response a selected value, and then the sum is transferred to the free field from the DRP with an offset. Table 1 below is an example of a lookup table for calculating the output in free field from a typical headset apparatus, showing as a function of frequency, the frequency response of a headset at DRP, an "A" weighting curve offset to be added to the

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headset response, and the transfer function offset from DRP to free field, to also be added to the response.

Table 1

Frequency (Hz)	Typical Frequency Response of a Headset at DRP (dBSPL/V)	"A" Weighting Curve Offset (dB)	Transfer Function DRP to Free Field Offset (dB)
100	95	-19.1	0.00
125	97	-16.1	0.00
160	100	-13.4	0.13
200	103	-10.9	0.20
250	104	-8.6	-0.01
315	104	-6.6	-0.11
400	104	-4.8	0.27
500	103.5	-3.2	-0.13
630	103.5	-1.9	-0.48
800	103.5	-0.8	-1.01
1000	104	0.0	-1.83
1250	107	0.6	-2.80
1600	115	1.0	-5.29
2000	121	1.2	-7.84
2500	120	1.3	-10.27
3150	120	1.2	-15.11
4000	106	1.0	-15.57
5000	101	0.5	-12.73
6300	92	-0.1	-7.53
8000	92	-1.1	-0.53

In one embodiment, the output at each frequency in free field ($output_i$), calculated from a lookup table such as Table 1 above, is averaged over the elapsed time period, taking into consideration the system gain. The default system gain is known and any adjustments to the system gain are recorded and known. The averaged output at each frequency is then used in the following equation to determine the free field equivalent exposure level (LEQ) in dBA:

$$LEQ(dBA) = 10\{Log_{10}[\sum_{i=100}^{8000} 10\text{^}(output_i)]\} \qquad \text{(Equation 1)}$$

where LEQ = free field equivalent exposure level, and

$output_i$ = free field output at each frequency

from i=100 Hz to i=8000 Hz.

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In another embodiment, the output at each frequency in free field is averaged over the predetermined interval, such as 5 minutes. The averaged output at each frequency is used in Equation 1 to determine the free field equivalent exposure level in the interval time frame. The exposure level in the interval time frame is stored in program data storage 202. Exposure calculation technique 208 then calculates the free field equivalent exposure level by averaging all the accumulated interval exposure levels calculated to date, retrieved from program data storage 202, to generate a real-time exposure level.

The calculated real-time free field equivalent exposure level, together with the elapsed time period, is then stored in program data storage 202 via lead 217 for future use by exposure calculation technique 208 during the next interval. The real-time exposure level is also sent on lead 221 to exposure extrapolation technique 207.

Exposure extrapolation technique 207 determines what the final free field exposure level will be over the specified durational time period (typically 8 hours) if no changes are made to the system gain. In one embodiment, the real-time exposure level calculated from exposure calculation technique 208, sent along lead 221, is averaged with the real-time exposure level from the last interval, retrieved from program data storage 202 along lead 214, based upon the assumption that the latest exposure level remains constant throughout the durational time period with updated values at each calculation interval.

In another embodiment, exposure extrapolation technique 207 extrapolates the real-time exposure level at a calculated rate change of exposure. The calculated rate change of exposure may be based upon the difference in calculated exposure level at two or more interval periods and the interval time period. For example, a step function may be used such that if there is a small change in exposure level, ranging from approximately 0 dBA to 5 dBA, the rate change of exposure is assumed to be zero and exposure extrapolation technique 207 extrapolates the real-time exposure level to the end of the preselected durational period holding the exposure level constant, with a multiplier factor of 1.0. If there is a change in exposure level greater than approximately 5 dBA, the real-time exposure level may be extrapolated at a higher rate than a zero rate change, such as a 1.1 multiplier factor to the exposure level. Other extrapolation techniques, such as linear and nonlinear regression, may also be used to determine a rate change of exposure. The calculated extrapolated exposure level is then sent to gain adjustment calculation technique 209 along lead 223.

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Gain adjustment calculation technique 209 calculates a gain adjustment for the input sound signal to allow for continuing use of the headset apparatus in compliance with maximum exposure threshold levels. Gain adjustment calculation technique 209 receives data regarding the exposure level calculated by exposure extrapolation technique 207 from lead 223 and time period data from program data storage 202 along lead 222. If the extrapolated exposure level is higher than the maximum exposure limit set through the software or by the user, gain adjustment calculation technique 209 calculates an appropriate gain level where the maximum exposure will not be exceeded. The system gain stored in program data storage 202 is reset through lead 222 to be in conformity with the new system gain calculated by gain adjustment calculation technique 209 for future reference in the next interval calculation.

The following equations are used to determine a reduction in gain for the system and a new system gain:

$$Gain_{reduction}(dB) = Exposure_{calculated} - \frac{[(Exposure_{max} \times T_{total}) - (Exposure_{calculated} \times T_{elapsed})]}{(T_{total} - T_{elapsed})}$$

where $Gain_{reduction}$ = system gain reduction

$Exposure_{calculated}$ = extrapolated exposure level

$Exposure_{max}$ = preselected maximum exposure level

T_{total} = preselected durational time

$T_{elapsed}$ = elapsed time for sampling

and

$$Gain_{new}\ (dB) = Gain_{system} - Gain_{reduction}$$

where $Gain_{new}$ = new system gain

$Gain_{system}$ = current system gain

In one example, the preselected maximum exposure level ($Exposure_{max}$) is set at 80 dBA, the preselected durational time (T_{total}) is set at 8 hours, and the extrapolated exposure ($Exposure_{calculated}$) has been calculated to be 83 dBA after an elapsed time ($T_{elapsed}$) of 2 hours. The current system gain ($Gain_{system}$) is at 12 dB. Thus, $Gain_{reduction}$ in this example, is calculated to be

$$Gain_{reduction} = 83 - (80 \times 8 - 83 \times 2) / (8-2) = 4\ dB$$

and the new system gain is calculated to be

$$Gain_{new} = 12 - 4 = 8\ dB.$$

Optionally, the time frame in which the input audio signal is adjusted depends on the magnitude of the calculated gain adjustment. For example, if the calculated gain adjustment

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is small, in the range of approximately 1 dB to approximately 2 dB, the attenuation can be made immediately since the change will not be readily noticed by the headset user. However, if the calculated gain adjustment is large, for example in the range of approximately 3 dB to approximately 6 dB, then a gradual step down over time following a step function can be used to make the change less noticeable to the headset user. However, a larger gain attenuation than the prior calculated gain adjustment will be required in this case to take into consideration the exposure during the step down time. In one example, if the system gain is required to be attenuated by 6 dB, then a gradual step down of 1.5 dB/minute may be set over the interval of 5 minutes.

As further shown in FIG. 2A, the gain adjust signal from gain adjustment calculation technique 209 and the digitized input audio signal from signal source 101 are sent to USB port 210 in computer 102 through leads 224 and 211, respectively. USB port 301 in headset adapter 103 receives data from USB port 210 along lead 107 and sends gain adjust data to gain circuitry 302 along lead 305. In this embodiment, headset adapter 103 includes a universal serial bus (USB) puck with a USB connection to computer 102. The USB puck is capable of being used with a wide range of headset apparatus and has a user interface 308 to allow for user gain adjustment. As is well known, the USB provides a ubiquitous link that can be used across a wide range of PC-to-telephone interconnects. The latest specification for USB can be found in "Universal Serial Bus Specification Revision 2.0," published in April 27, 2000, available at http://developer.intel.com/technology/usb/spec.htm. Although in this embodiment a USB port is used in computer 102 and headset adapter 103, other well-known peripheral interfaces may be used, such as SCSI and UltraIDE interfaces.

Gain circuitry 302 then attenuates the digitized input signal from signal source 101 in conformity with the gain adjust signal from gain adjustment calculation technique 209 so that the total noise to which the user has been and will be exposed, based on the past and current measurements, does not exceed the specified exposure limits. Gain adjusts are not frequency dependent. The gain of the whole signal is reduced by the same amount to maintain the selected frequency response. Gain circuitry 302 then sends the adjusted audio signal along lead 306 to digital to analog (D/A) converter 303 for conversion of the digital signal to an analog signal. D/A converter 303 may be any suitable device for converting digital audio signals to analog audio signals. Finally, the analog signal is sent along lead 108 to headset apparatus 104, where it is converted into an acoustic signal which is heard by the user.

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Although in the previously described embodiments, gain and frequency response circuitry are located in headset adapter 103, the invention is not limited to a particular headset adapter. Any apparatus that operably connects a headset to computer 102 and controls the gain of the signal to the headset apparatus may be used as an alternative to headset adapter 103. In other embodiments, such adapter features and gain adjust circuitry may be located within computer 102, a telephone, a cellular telephone, or any suitable peripheral device. In the embodiment shown in FIG. 2B, adapter features and gain adjust circuitry are located within computer 102.

In an alternative embodiment, headset apparatus 104 may receive digital signals. After gain circuitry 302 adjusts the digitized input signal based upon the gain adjust signal, the adjusted digital signal is directly sent to headset apparatus 104, where it is converted into an acoustic signal which is heard by the user. The adjusted digital signal bypasses D/A converter 303 in this embodiment.

Referring to FIGS. 2A and 2B, user interface 105 is operably connected to computer 102 and specifically is connected to program data storage 202 through lead 109. User interface 105 allows the user to enter calculation parameters such as threshold levels, weighting factors, durational time, and the type of headset apparatus chosen by the user. Further, user interface 105 allows for gain adjustments by the headset user. User interface 105 may include manual interfaces such as a keyboard or mouse and a visual display unit.

Referring to FIG. 2A, a user interface 308 is optionally connected to headset adapter 103 and specifically is connected to gain circuitry 302 through lead 309. User interface 308 allows the user to manually adjust the gain of the input signal being heard through the headset apparatus through headset adapter 103.

If the system gain is adjusted by the user, through either user interface 105 or 308, the system gain stored in program data storage 202 will be updated to correspond to such user adjustment. However, any gain adjustment that is desired by the user will first be compared to data from gain adjustment calculation technique 209 and could potentially be negated in order to comply with exposure limits. For example, if the user selects to increase the gain 3 dB but the gain adjustment calculated by gain adjustment calculation technique 209 allowed for an increase of only 1 dB, the system would not allow the user to make the full adjustment. The program will allow the user to make adjustments to decrease the gain or to increase the gain in accordance with the calculated gain adjustment, but the program

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will not allow the user to make adjustments increasing the gain in contradiction to the calculated gain adjustment.

In the alternative, there may be no user adjustable gain. A gain will be initially set by the host and will be adjusted absolutely by gain adjustment calculation technique 209.

Optionally, the audio dosimeter program will offer to save the data computed to a specific file in the memory. Data saved in program data storage 202 or data storage 206 may be automatically backed up if the option to save is not taken when the program is shut down or reset.

The above-described embodiments of the present invention are merely meant to be illustrative and not limiting. It will thus be obvious to those skilled in the art that various changes and modifications may be made without departing from this invention in its broader aspects. Therefore, the appended claims encompass all such changes and modifications as falling within the true spirit and scope of this invention.

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CLAIMS

We claim:

1. A method for monitoring noise exposure from a headset comprising:

sampling an input sound signal to produce a plurality of samples as a function of time;

calculating from said plurality of samples a headset sound level corresponding to the input sound signal;

calculating real-time exposure of a user of the headset to the headset sound level; and

extrapolating the real-time exposure to the end of a preselected time period.

2. The method of Claim 1, wherein sampling an input sound signal comprises sampling at selected frequency bands.

3. The method of Claim 1, wherein sampling an input sound signal comprises sampling at selected sampling rates.

4. The method of Claim 1, wherein the input sound signal is from a public switched telephone network.

5. The method of Claim 1, further comprising:

digitizing the input sound signal at sampled frequencies.

6. The method of Claim 1, wherein calculating the headset sound level comprises using a transfer function that includes a headset speaker frequency response factor, a headset electrical sensitivity factor, and a free field equivalency factor.

7. The method of Claim 1, wherein calculating real-time exposure to the headset sound level comprises using a weighting function that includes a trading relationship between exposure time and exposure level.

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8. The method of Claim 7, wherein a trading relationship is selected between approximately 3 dB to approximately 6 dB for doubling exposure time.

9. The method of Claim 1, wherein extrapolating the real-time exposure to the end of a preselected time period comprises calculating a rate of exposure change.

10. The method of Claim 1, further comprising:

determining real-time levels of impulse noise and continuous noise.

11. A method for controlling noise exposure from a headset comprising:

sampling an input sound signal to produce a plurality of samples as a function of time;

calculating from said plurality of samples a headset sound level corresponding to the input sound signal;

calculating real-time exposure of a user of the headset to the headset sound level;

extrapolating the real-time exposure to the end of a preselected time period;

calculating a gain adjustment for the input sound signal; and

adjusting gain of the input sound signal in conformity with the gain adjustment calculation.

12. The method of Claim 11, wherein calculating a gain adjustment for the input sound signal comprises:

comparing extrapolated exposure to regulatory threshold levels.

13. The method of Claim 11, wherein calculating a gain adjustment for the input sound signal comprises determining a time frame for gain adjustment depending upon the magnitude of the gain adjustment.

14. The method of Claim 11, wherein adjusting gain of the input sound signal is carried out immediately for a small gain adjustment and is carried out over a longer time frame for a large gain adjustment.

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15. The method of Claim 14, wherein a small gain adjustment is in the range of approximately 1 dB to approximately 2 dB.

16. The method of Claim 14, wherein a large gain adjustment is in the range of approximately 3 dB to approximately 6 dB.

17. The method of Claim 11, further comprising:

selecting calculation parameters comprising regulatory threshold levels, time periods, headset apparatus type, and user gain adjustment levels.

18. The method of Claim 11, further comprising:

visually displaying sound measurement values comprising impulse noise, continuous noise, exposure levels, and gain adjustments.

19. A headset audio dosimeter, comprising:

sampling circuitry for sampling an input sound signal to produce samples of said input sound signal;

a headset sound level technique for calculating from said samples of said input sound signal a headset sound level corresponding to the input sound signal;

an exposure technique for calculating from said headset sound level the cumulative exposure of a user of a headset to the headset sound level;

an exposure extrapolation technique for extrapolating the expected cumulative exposure of the user to the headset sound level to the end of a preselected time period; and

a gain adjustment technique for calculating a gain adjustment for the input sound signal to limit the total cumulative exposure of the user to sound over the preselected time period to below a selected value.

20. The headset audio dosimeter of Claim 19, wherein the sampling circuitry is capable of sampling the input sound signal at selected frequency bands and at selected sampling rates.

21. The headset audio dosimeter of Claim 19, wherein the input sound signal is from a public switched telephone network.

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22. The headset audio dosimeter of Claim 19, wherein the headset sound level technique comprises a transfer function that includes a headset speaker frequency response factor, a headset electrical sensitivity factor, and a free field equivalency factor.

23. The headset audio dosimeter of Claim 19, wherein the exposure technique comprises a weighting function that includes a trading relationship between exposure time and exposure level.

24. The headset audio dosimeter of Claim 19, further comprising:

a user interface for allowing a user to select a trading relationship of between approximately 3 dB to approximately 6 dB for doubling exposure time.

25. The headset audio dosimeter of Claim 19, wherein the exposure extrapolation technique comprises:

structure for calculating a rate of exposure change.

26. The headset audio dosimeter of Claim 19, wherein the gain adjustment technique comprises:

structure for comparing between extrapolated exposure and regulatory threshold levels.

27. The headset audio dosimeter of Claim 19, wherein the gain adjustment technique comprises:

structure for determining a time frame for gain adjustment depending upon the magnitude of the gain adjustment.

28. The headset audio dosimeter of Claim 27, wherein the structure is capable of adjusting gain immediately for a small adjustment and over a longer time for a large gain adjustment.

29. The headset audio dosimeter of Claim 28, wherein a small adjustment is in the range of approximately 1 dB to approximately 2 dB.

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30. The headset audio dosimeter of Claim 28, wherein a large adjustment is in the range of approximately 3 dB to approximately 6 dB.

31. The headset audio dosimeter of Claim 19, further comprising:

a user interface for allowing a user to select calculation parameters comprising regulatory threshold levels, weighting factors, time periods, headset apparatus type, and user gain adjustment levels.

32. The headset audio dosimeter of Claim 19, further comprising:

a technique for determining levels of impulse noise and continuous noise.

33. The headset audio dosimeter of Claim 19, further comprising:

a display to visually show sound measurement values comprising impulse noise, continuous noise, exposure levels, and gain adjustments.

34. A headset audio dosimeter system, comprising:

a sound signal source for producing an input sound signal;

means for sampling the input sound signal to produce samples of said input sound signal;

means for storing said samples;

a processor;

a program stored in a memory for allowing said processor to calculate from said samples a gain adjustment for the input sound signal;

gain control circuitry responsive to said calculated gain adjustment for adjusting gain of the input sound signal in conformity with the calculated gain adjustment to produce an adjusted sound signal; and

a headset apparatus to receive the adjusted sound signal.

35. The headset audio dosimeter system of Claim 34, wherein said program comprises instructions to cause said processor to:

calculate a headset sound level corresponding to the input sound signal from said samples of said input sound signal;

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calculate from the headset sound level the cumulative exposure of a user of a headset to the headset sound level;

extrapolate the expected cumulative exposure of the user to the headset sound level to the end of a preselected time period; and

calculate a gain adjustment for the input sound signal to limit the total cumulative exposure to sound of the user over the preselected time period to below a selected value

36. The headset audio dosimeter system of Claim 34, wherein the sound signal source comprises a public switched telephone network.

37. The headset audio dosimeter system of Claim 34, wherein the sampling means samples the input sound signal at selected frequency bands and at selected sampling rates.

38. The headset audio dosimeter system of Claim 35, wherein the program further comprises instructions to cause said processor to:

calculate a headset sound level using a transfer function that includes a headset speaker frequency response factor, a headset electrical sensitivity factor, and a free field equivalency factor.

39. The headset audio dosimeter system of Claim 35, wherein the program further comprises instructions to cause said processor to:

calculate exposure to the headset sound level using a weighting function that includes a trading relationship between exposure time and exposure level.

40. The headset audio dosimeter system of Claim 34, further comprising:

a user interface for allowing a user to select a trading relationship of between approximately 3 dB to approximately 6 dB for doubling exposure time.

41. The headset audio dosimeter system of Claim 35, wherein the program further comprises instructions to cause said processor to:

extrapolate exposure to the end of a preselected time period at a calculated rate of exposure change; and

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calculate a gain adjustment for the input sound signal by comparing extrapolated exposure to regulatory threshold levels.

42. The headset audio dosimeter system of Claim 35, wherein the program further comprises instructions to cause said processor to:

determine a time frame for gain adjustment for the input signal depending upon the magnitude of gain adjustment.

43. The headset audio dosimeter system of Claim 42, wherein structure is capable of adjusting gain immediately for a small adjustment and over a longer time for a large adjustment.

44. The headset audio dosimeter system of Claim 43, wherein a small adjustment is in the range of approximately 1 dB to approximately 2 dB.

45. The headset audio dosimeter system of Claim 43, wherein a large adjustment is in the range of approximately 3 dB to approximately 6 dB.

46. The headset audio dosimeter system of Claim 34, further comprising:

a headset adapter which operably connects a variety of headset apparatus to the gain adjust circuitry.

47. The headset audio dosimeter system of Claim 46, wherein the headset adapter includes a user interface for allowing gain adjustment by the user.

48. The headset audio dosimeter system of Claim 34, further comprising:

a user interface for allowing a user to select calculation parameters comprising regulatory threshold levels, weighting factors, time periods, headset apparatus type, and user gain adjustment levels.

49. The headset audio dosimeter system of Claim 34, wherein the program further comprises instructions to cause said processor to:

determine levels of impulse noise and continuous noise.

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50. The headset audio dosimeter system of Claim 34, further comprising:

a display to visually show sound measurement values calculated by the program comprising impulse noise, continuous noise, exposure levels, and gain adjustments.

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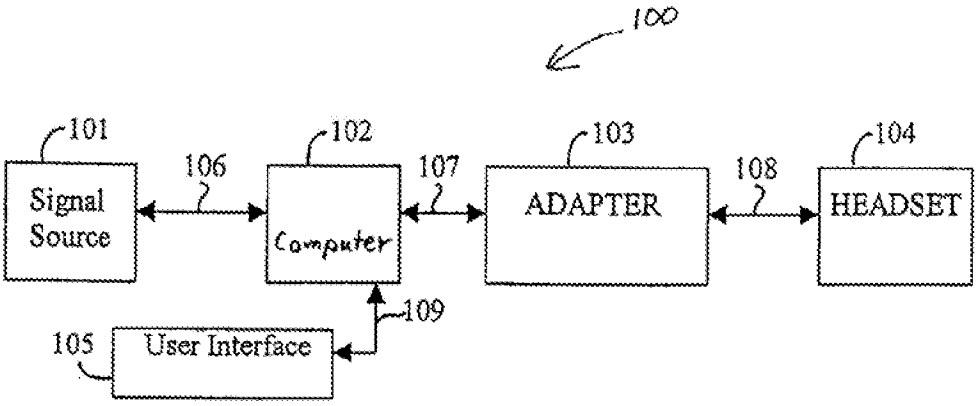


Fig 1.

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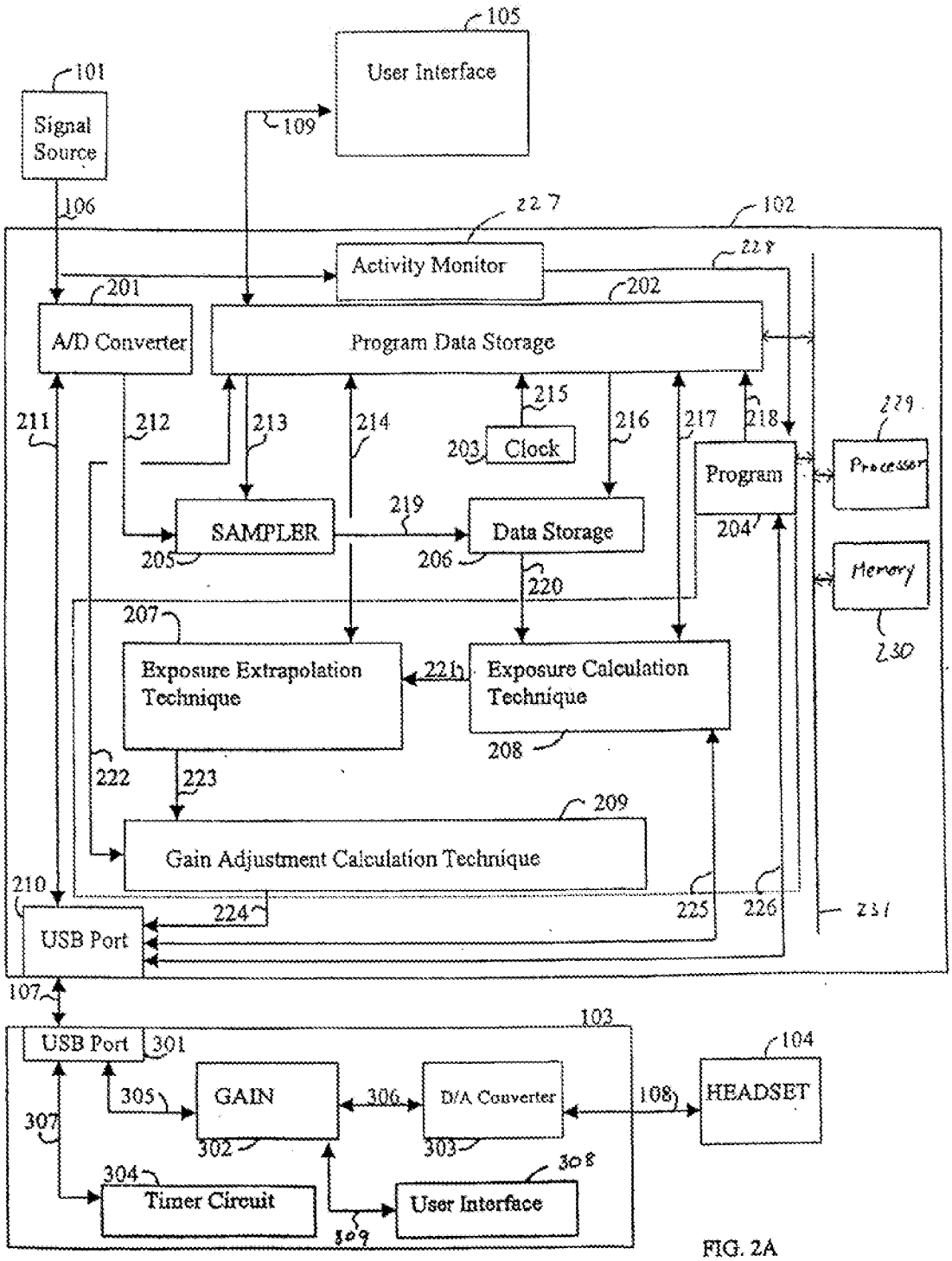


FIG. 2A

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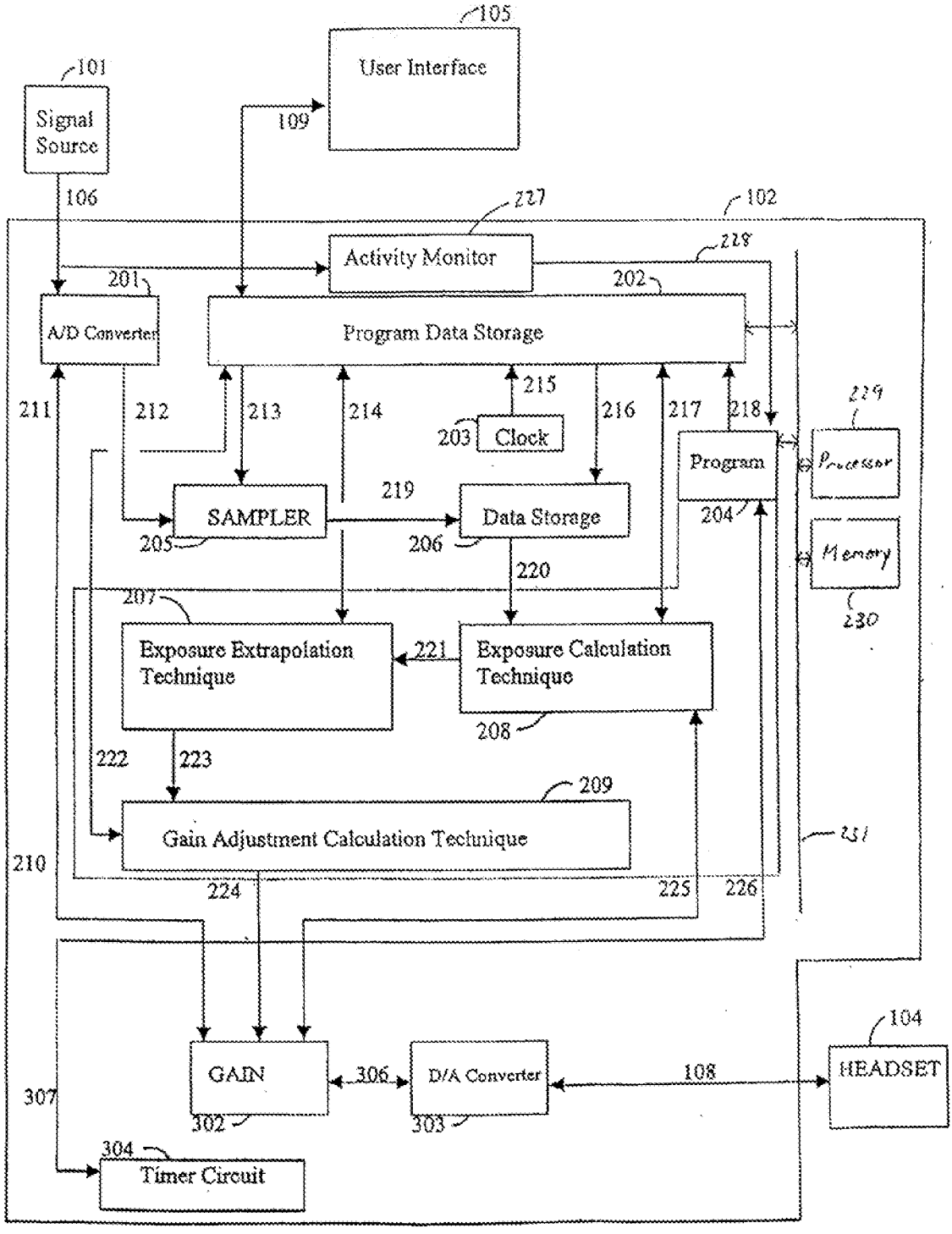


FIG. 2B

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(54) Title: DISTRIBUTED NETWORK OF COMMUNICATIVELY COUPLED NOISE MONITORING AND MAPPING DEVICES

(57) Abstract: Disclosed embodiments may relate to systems and methods for monitoring and/or mapping noise data from a plurality of noise monitoring devices. In some embodiments, the plurality of noise monitoring devices may include hearing protection devices configured to detect noise, and typically may communicate such noise data (which may also include location) so that the noise data can be pooled. The pooled noise data from the plurality of noise monitoring devices may then be used to the benefit of one or more of such noise monitoring devices.

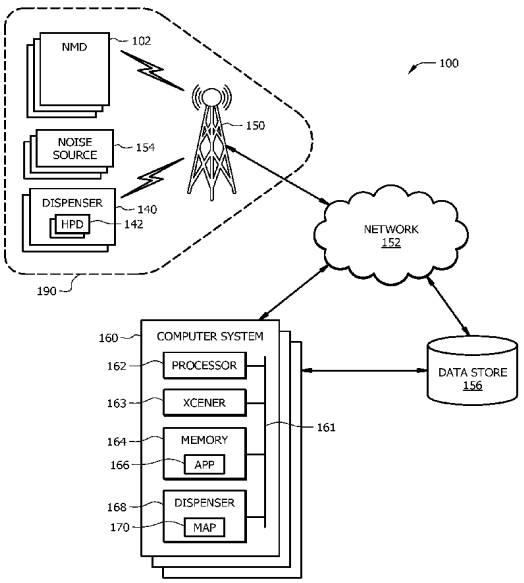


FIG. 1

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— *with international search report (Art. 21(3))*

DISTRIBUTED NETWORK OF COMMUNICATIVELY COUPLED NOISE MONITORING AND MAPPING DEVICES

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims priority to U.S. Provisional Patent Application Serial No. 62/457,298 filed February 10, 2017 by Neal Muggleton, et al. and entitled "Distributed Network of Communicate Coupled Noise Monitoring and Mapping Devices" which is incorporated herein by reference as if reproduced in its entirety.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not applicable.

REFERENCE TO A MICROFICHE APPENDIX

[0003] Not applicable.

BACKGROUND

[0004] In hazardous industrial work environments, machinery and alarm speakers may periodically and/or continuously generate noise that can be harmful to worker's ears and potentially cause noise-induced hearing loss and/or hearing damage over short and/or prolonged exposure periods. The issue of potential hearing damage often arises in manufacturing and other industrial facilities, but may also arise in military settings, airport settings, and other work environments that involve potentially damaging noise exposure. The sounds generated by machines, speakers, or people may occur at different locations within a worksite and the level of noise may increase as the sound sources multiply and/or with the occurrence of an emergency event, such as an alarm tone having a higher frequency and level (e.g. decibel) in an emergency event compared to the sound frequency and level in typical, non-emergency industrial work

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environments. Thus, to safeguard the hearing of people (such as workers, employees, customers, etc.) against harmful and/or prolonged noise exposure, the use of hearing protection may be implemented. The level of hearing protection can be measured in terms of decibel levels of exposure (dB) (e.g. differences in level of exposure) and corresponding noise reduction capability referred to as noise reduction rating (NRR).

SUMMARY

[0005] Embodiments of the present disclosure relate to systems and methods to monitor and map noise data from a plurality of noise monitoring devices (NMD) (e.g., specifically configured noise dosimeters, sound level meters, hearing protection devices (hpd), non-attenuating headsets, attenuating headsets, other sensor equipment (e.g. gas detectors) with noise monitoring capabilities (e.g. microphones), Personal Protection Equipment (PPE) with noise monitoring capabilities (e.g. PPE having integrated wearable sensors), and/or in some embodiments fixed noise monitoring devices – in other words, the NMD may comprise mobile (e.g. configured to be attached to, carried by, and/or worn by individual users/workers (e.g. personalized)) and/or fixed devices), which typically may be specifically configured and operable to communicatively couple (e.g., wired and/or wirelessly) to a central computer system (which is configured to be a non-generic particular machine) via a network. In some embodiments, the computer system is configured to receive the noise data (which may include measured sound values, location information, identifiers, and other information received from noise monitoring devices (such as classification of sound or other sensor data, for example)) from the plurality of noise monitoring devices, pool the noise detection data (such as by concatenating identifiers of each noise monitoring device), and create a noise map that is operable for output to a display (e.g., a display of a user equipment located at a facility in which the noise monitoring devices are located, which

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could in come embodiments include display of output from the noise map/computer on NMD (e.g. hpd) or other devices within the facility – for example, passive display means such as lighting (which may provide a direct method of communication to the workers in the immediate surroundings and others who may or may not be wearing NMD/hpd), in some instances including hpd which could include lights indicative of noise level and/or lit floor tiles representative of noise level). In some embodiments, the noise map may be instantaneous (e.g. reflecting one (single) moment in time, for example all information/data at a particular instance and/or related to a specific sampling instance/time), dynamic (e.g. changing periodically to reflect current information or updated accumulated information/data (e.g. reflecting an average noise level over a pre-set time period, for example an average per minute, per five minutes, per 10 minutes, per fifteen minutes, per hour, per shift, or per day), for example based on sampling frequency rate), and/or cumulative over some set period of time. Typically, each instantaneous noise map (e.g. noise data for a particular time and/or sampling instance/time) would be stored in memory for some time period (e.g. for at least the longest of any time period(s) which might be used for any cumulative noise map purposes), such that any and all such noise maps (e.g. noise data) might be available to the system (for example, depending on the specific type of data needed for a particular usage/analysis). Noise monitoring devices may also be referred to as noise mapping devices (NMD). For example, a computer system may create a noise map in which noises (i.e. sound levels) between known noise data points (received from the plurality of noise monitoring devices of the system) are interpolated and correlated with known location identifiers on a generated digital noise map (a data structure configured to correspond with a predefined layout of a physical location, such as but not limited to a factory layout, construction site, commercial building, etc.). Once created, the computer system may push, via a network, the noise map to displays that are accessible to a user

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associated with at least one of the plurality of noise monitoring devices (such as a user wearing a hearing protection device that reported noise detection data to the central computer system) and/or to a supervisor or monitor personnel (for example at a central or remote location) and/or to any other networked device (such as a smart phone or smart watch).

[0006] For example, embodiments of a system of the present disclosure could comprise: (1) a plurality of noise monitoring devices (such as a NMD that is specifically configured as a hearing protection device that optionally has a hearing protection element (e.g. earmuff, earplug, or other element for sealing the ear canal or otherwise protecting the user from external noise)), wherein at least one noise monitoring device may include: at least one microphone electrically coupled to a processor that is configured to receive incoming noise signals via at least one microphone and then transform the noise signals into noise data that is collected for noise monitoring, a locator device (such as a global positioning receiver module, one or more short-range and/or long-range transceivers (e.g., operable for wireless communication at distances between 1mm-100m, and 1mm-100km respectively) coupled to the processor to determine location via trilateration, radio frequency identification transceivers, wi-fi transceiver, etc.) operable/configured to determine the noise monitoring device's location (such as the location of the NMD within a facility), and a transceiver (e.g., a radio transceiver configured for wireless communication and/or a wired transceiver for communicating noise data). In some embodiments, the system may further comprise (2) a remotely located computer system that is communicatively coupled, via the network, to the plurality of noise monitoring devices, the computer system comprising a transceiver coupled to a processor and a non-transitory memory, the non-transitory memory comprising an application that, upon execution, configures the computer system to: communicate with the plurality of noise monitoring devices and/or receive noise data from at least the NMD that

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provides hearing protection; pool the noise data communicated from the NMD (that provides hearing protection) and the plurality of noise monitoring devices; and based on the pooled noise data, generate a noise map. To generate an effective noise map, the system may sample noise at a rate suitable for the specific end use to which the noise map pooled data may be put. So for example, in some embodiments the noise monitoring device might detect noise at a rate from one minute, to 15 minutes, to hourly, to daily, depending on the specific usage envisioned for the data. More frequent sampling (for example once per second or even more frequently) may yield a higher data resolution, which might be advantageous in some embodiments (for example in uses related to moving noise sources). A plurality of NMD's could be communicatively connected with the computer system, and the computer system would use the detected noise data from one or more NMD's to generate a noise map. The computer system may be remotely located relative the plurality of noise monitoring devices (such as one or more NMD's that provide hearing protection), and the computer system can be configured to interpolate for areas of the noise map between the actual measured noise monitoring data points received by the computer from the NMDs (wherein the interpolation may in some instances be based on a model of the site, such that sound propagation can be calculated/estimated). The remotely located computer system may be operable to provide a display (e.g. a monitor screen) that is configured to present the noise map in a visual format (e.g. typically heat maps, which might show a layout of a facility and indicating intensity levels of sound at certain locations in the facility based on varying colors and brightness levels, where for example the higher intensity of noise is represented by a more concentrated color and/or brightness on the map relative low intensity noise locations on the map with darker colors and/or lower brightness). In some instances, the computer system might transmit the generated

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noise map to a plurality of displays (e.g. separate and apart from the computer system) which are located a predefined distance from the plurality of noise monitoring devices.

[0007] Such a noise map might then be used by the computer system and/or noise monitoring devices in a variety of ways, for example with interaction with one or more of the noise monitoring devices and/or sources of the noise. For example, data from the noise map could be used by the computer system, noise monitoring devices, and/or sources producing the noise in one or more of the following ways: (a) determine from noise data and/or the noise map (from the communicatively connected noise monitoring devices) if there is a moving noise source that might pose a physical hazard to users with limited hearing (e.g. due to possible hearing damage and/or the use of hearing protection) and warn users of a potential collision hazard; (b) detect an alarm and transmit/share alarm information with other hpd in the zone of alarm and/or related zone(s) (e.g. in proximity or abutting the alarm zone); (c) correlate user location (i.e., location of the NMD) with noise level and compare to database (e.g. containing specific hearing information/threshold for each device) to determine if a warning should be sent to a specific NMD (for example, if the specific device corresponds with a user profile indicating a sensitivity to noise and that user should not be exposed to such loud noise); (d) detect if a hpd is (in an adjacent zone and) moving towards a zone having noise in excess of the user's threshold; (e) for a new worker coming in that is wearing an NMD, determine the zone (of the noise map/facility) that the user will be entering and suggest/recommend (e.g., via an audible warning transmitted to that user's NMD) or provide (e.g. automatically dispense hearing protection via a proximate hearing protection dispenser) appropriate hpd based on their location within the noise map; (f) compare information on the location and type of NMD to the noise map, determine if the hearing protection provided by the NMD is insufficient/inadequate (e.g., hearing protection element of the NMD does not have active

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noise cancellation and/or not a high enough NRR), and transmit a warning to the NMD if the hearing protection is found inadequate; (g) generate an estimate of time (left/remaining) to spend in the zone (based on location, type of NMD that provides hearing protection, noise map, individualized user hearing information/threshold, and/or previous exposure (history) to noise) and transmit to the NMD; (h) use noise data (e.g. from the noise map) regarding a moving noise source to alter the set-up/configuration of NMD along the trajectory of the moving noise source. In some embodiments, the noise map could be used in combination with a worker location tracking system, such that the person/worker not wearing any noise monitoring NMD/hpd could still have their noise exposure data determined and stored by the computer by combining the worker's location throughout the work day compared with the noise levels available through the mapped data (e.g. from the NMD) at the time that such person/worker is located in a given area (with known noise level due to the noise map) (e.g. correlating such a worker's location with the measured noise data from other NMD). Other uses for the noise map data (such as population wide analysis of areas/zones within a facility that may need to be engineered to reduce noise emissions or using noise detection information for fault detection, for example to detect part or equipment failure based on noise level outside the expectation (e.g. range) for a zone/area (for example based on pre-knowledge of what an area/zone should sound like and/or based on specific frequency detection indicative of such a failure) and/or help locate such failures by correlating data from several noise monitoring devices, which can then be used to notify maintenance and/or NMD reacting to the environment by adjusting hear through and/or noise cancelling function's within the HPD and/or environmental (external) noise mapping) may also be contemplated, and are within the scope of this disclosure. Further details about embodiments of the present disclosure for use of the noise map are set forth below.

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BRIEF DESCRIPTION OF THE DRAWINGS

[0008] For a more complete understanding of the present disclosure, reference is now made to the following brief description, taken in connection with the accompanying drawings and detailed description, wherein like reference numerals represent like parts.

[0009] FIG. 1 is a diagram of a noise mapping and monitoring system according to an embodiment of the disclosure.

[0010] FIG. 2 is a block diagram of a noise mapping and monitoring system in accordance with an illustrated embodiment shown in FIG. 1.

[0011] FIG. 3A is a block diagram of a noise mapping device having integrated noise monitoring and mapping according to an example embodiment.

[0012] FIG. 3B is an illustration of a housing and hearing protection elements for the noise monitoring device of FIG. 3A according to an example embodiment.

[0013] FIG. 3C is an illustration of a housing and hearing protection elements for the noise mapping and monitoring device of FIG. 3A according to another example embodiment.

[0014] FIG. 3D is an illustration of a housing for the noise monitoring device of FIG. 3A according to an example embodiment.

[0015] FIG. 4 is a block diagram of circuits utilized to perform noise monitoring and mapping according to an example embodiment.

[0016] FIG. 5 is a block diagram that illustrates an exemplary computer system suitable for implementing the several embodiments of the disclosure.

[0017] FIG. 6 is a schematic diagram showing an exemplary NMD/hpd with exemplary visual indicator (with both front and side views), showing two exemplary stages of illumination.

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DETAILED DESCRIPTION

[0018] It should be understood at the outset that although illustrative implementations of one or more embodiments are illustrated below, the disclosed systems and methods may be implemented using any number of techniques, whether currently known or not yet in existence. The disclosure should in no way be limited to the illustrative implementations, drawings, and techniques illustrated below, but may be modified within the scope of the appended claims along with their full scope of equivalents.

[0019] The following brief definition of terms shall apply throughout the application:

[0020] The use of the term "comprising" and the term "including", (as well as other forms such as "comprises", "includes", and "included") is not to be interpreted as limiting;

[0021] The phrases "in one embodiment," "according to one embodiment," and the like generally mean that the particular feature, structure, or characteristic following the phrase may be included in at least one embodiment of the present invention, and may be included in more than one embodiment of the present invention (importantly, such phrases do not necessarily refer to the same embodiment);

[0022] Use of the term "exemplary" or an "example" is understood to refer to a non-exclusive example, and the use of such term means "serving as an example, instance, or illustration," and should not necessarily be construed as preferred or advantageous over other embodiments;

[0023] The terms "about" or approximately" or the like, when used with a number, is understood to mean that specific number, or alternatively, a range in proximity to the specific number, as understood by persons of skill in the art field; and

[0024] If the specification states a component or feature "may," "can," "could," "should," "would," "preferably," "possibly," "typically," "optionally," "for example," "often," or "might" (or

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other such language) be included or have a characteristic, that particular component or feature is not required to be included or to have the characteristic. Such component or feature may be optionally included in some embodiments, or it may be excluded.

[0025] In the following description, reference is made to the accompanying drawings that form a part hereof, and in which is shown by way of illustration specific embodiments which may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to practice the present disclosure, and it is to be understood that other embodiments may be utilized and that structural, logical and electrical changes may be made without departing from the scope of the present disclosure. The following description of example embodiments is, therefore, not to be taken in a limited sense.

[0026] Turning now to FIG. 1, a noise monitoring and mapping system 100 is disclosed for implementation of embodiments of the present disclosure. System 100 comprises a plurality of noise monitoring devices (NMD) 102 (which may also be referred to as noise mapping devices NMD), at least one hearing protection dispenser 140 (hereinafter dispenser), and at least one noise source 154. The noise source 154 may be embodied by one or more sound/audio sources that produce sounds in work environments, such as machinery, vehicles, speakers, people, or equipment in manufacturing and industrial facilities, military settings, airport settings, and other work environments that involve potentially damaging noise exposure. A noise source, such as noise source 154, generates continuous and/or intermittent noise above a defined threshold for defined a time period (such as above 90dB for at least 1 second). NMD's 102 and dispenser 140 are capable of wireless communication with each other and with one or more computer system(s) 160 via one or more network node(s) 150 (e.g., a wireless access point (WAP) and/or cell site). Each of the NMD's 102, dispenser 140, and network nodes 150 communicatively couple with the

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computer system 160 via a network 152. The computer system 160 may access datastore 156 via direct and/or indirect communicatively coupling, such at least some of the memory of datastore 156 being co-located with computer system 160 and/or being accessed via network 152. It is understood that, in some embodiments, the total number of NMD's 102, network nodes 150, dispensers 140, noise sources 154, computer systems 160, and datastores 156 may greater than the number of devices illustrated in FIG. 1 or at least some features discussed may be combined into fewer devices than illustrated in FIG. 1.

[0027] Embodiments of network 152 may comprise a public network, private network, wired network, wireless network, internet protocol network, core network, radio access network, or any combination thereof, and comply with standards of wireless communication protocol. Each network node 150 is configured to provide a wireless communication link(s) to and from at least the NMD's 102 and dispenser 140 according to at least one wireless communication standard, such as Long Term Evolution (LTE), Worldwide Interoperability for Microwave Access (WiMAX), High Speed Packet Access (HSPA), Code Division Multiple Access (CDMA), Global System for Mobile Communication (GSM), Bluetooth, Wi-Fi (e.g., WAP using 802.11 standards), or any combination thereof. A network node 150 may, in some embodiments, be referred to according to the technology with which it supports, such as being referred to a wireless access point (WAP) for corresponding to an 802.11 wireless technology, an enhanced Node B (eNB) for corresponding to an LTE technology, a base transceiver station (BTS) for corresponding to a GSM technology, or another type of edge node used in wireless communications. In some embodiments, one or more network node 150 may comprise computer elements (e.g., processors, transceivers, antennas) that facilitate wireless communication and the elements may be distributed in a location and/or co-located in physical structures that are separate from other elements, but collectively comprise the

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network node 150 that is communicatively coupled (e.g., via wired and/or wireless communication paths) with the network 152.

[0028] Hearing protection dispenser 140 comprises a radio transceiver, processor, memory, and circuitry that dispenses hearing protection devices 142 in response to release messages sent by computer system 160. The dispenser 140 may be configured to provide hearing protection identifiers to computer system 160, where each hearing protection identifier is stored in memory and corresponds with one of the hearing protection devices 142 that is dispensed by a dispensing unit. For example, computer system 160 may communicate with dispenser 140 (via network node 150) to request how many hearing protection devices 142 are available for distribution. The dispenser 140 may transmit a list of hearing protection identifiers to application 166 in computer system 160. Computer system 160 may determine that one of the hearing protection devices 142 is suitable to mitigate hazardous noise within the predefined area 190, and thus send a release message to dispenser 140, with the release message comprising the identifier(s) of the hearing protection devices that should be released. For example, dispenser 140 may store a list of identifiers corresponding to twenty ear plugs that have an NRR rating of 32. Dispenser 140 may receive a release message, from computer system 160, comprising instructions to dispense three sets of earplugs (i.e., hearing protection devices 142). In some embodiments, the dispenser 140 may actuate a release mechanism that releases the hearing protection devices 142 (e.g., three sets of earplugs in this example) from a storage container. In some embodiments, dispenser 140 may dispense the hearing protection devices 142 in response to a user being within a defined proximity to the dispenser 140, such as by dispenser 140 communicating with an radio frequency identity (RFID) tag associated with the user and/or allowing a user to manually release the hearing

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protection device(s) 140 when the user's noise mapping device 102 is within five feet of the dispenser 140.

[0029] Computer system 160 may be occasionally referred to as a central server, and comprises a communication bus 161, processor 162, transceiver 163, memory 164 and display 168. Memory 164 stores mapping application 166 that configures processor 162 upon execution. It is understood that, in some embodiments, computer system 160 may comprise one or more servers and accesses noise data and records in datastore 156. Although display 168 is illustrated as being comprised within computer system 160, it is understood that display 168 may be a remote display that is remotely located from computer system 160, but remains operable to present a noise map 170 created by execution of application 166, as further discussed herein.

[0030] Continuing discussion of FIG. 1 with further reference to FIGS. 3A, 3B, 3C, and 3D, noise mapping devices 102 may be portable devices that are configured to sense environment sounds (i.e., environment noise), record the received sounds as a noise value corresponding to a level of noise (e.g., a value in units of dB), create a noise data record that comprises at least the noise value and a location marker at a time of the received sounds, determine a historical location marker based on a log stored in memory of the NMD 102, insert the historical location marker in the noise data record, and wirelessly transmit the noise data record to computer system 160 via network node 150. In some embodiments, the circuitry and elements of NMD 102 may be comprised within at least one of a noise dosimeter, sound level meters, hearing protection devices (hpd), non-attenuating headsets, or any combination thereof. NMD 102 may be configured with capabilities for noise monitoring and mapping, sound exposure monitoring, passive sound attenuation, active sound attenuation, leakage control, hear-through, and

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communication/entertainment, featuring passive sealing, electro-acoustic transducers, electric circuitry, and in some embodiments, hearing protection elements.

[0031] As illustrated according to an embodiment in FIG. 3A, noise mapping device 102 comprises a noise map circuit 110 retained within an outer structure or housing 109. In some embodiments, the outer housing 109 may be worn by a user (e.g., the housing 109 being in the configuration of an ear piece or ear plug that each have hearing protection elements). NMD 102 includes at least one outer microphone 104 and at least one speaker 107. The sound inlet of the outer microphone 104 may be mounted to the outer structure 109 and configured to receive external noise and sounds from the environment. The outer microphone 104 is electrically coupled to circuit 110, which is powered by power source 112 (e.g., a rechargeable battery, a disposable battery, and/or an AC power supply). The NMD 102 may transmit audible sounds from speaker 107 via acoustic channel 108. In some embodiments, NMD 102 includes a second microphone 106, which may be disposed on an inner portion of the housing 109 that is facing the ear of a user. The second microphone 106 receives sound via noise channel 105. The circuit 110 may be configured to assess sound exposure based on the signals from the microphones 104 and 106, and store received sound data on memory in circuit 110. The NMD 102 comprises a radio transceiver (e.g., transceiver configured for wireless communication via cellular frequencies, WiFi, Bluetooth, RFID, etc.) that sends and receives information to and from an external computer system (e.g., computer system 160 of FIG. 1). In some embodiments, NMD 102 comprises a user interface 113 that is operable to display information pertaining to the measured noise. For example, interface 113 may receive commands from circuit 110 to power one of a red, yellow, or green exposure light (e.g., LED bulb or color on LED display). The circuit 110 may also be configured to provide audio alerts (via speaker 107) to users regarding sound exposure status and/or instructions to begin

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wearing hearing protection, switch to a type of hearing protection that has a higher NRR rating, directions to the location of the nearest hearing protection dispenser (e.g., dispenser 140). Various audio alerts may be provided as the wearer approaches different levels of sound exposure as calculated using the noise map and sound data received from various NMD's 102, such as transitions between low and medium and between medium and high exposures in each ear (i.e., sending an audio alert when predefined exposure or sound level thresholds (dB) are exceeded). In some embodiments, the circuit 110 may generate an audible dialog to the user indicating noise exposure, directions to avoid noise exposure, directions towards the nearest dispenser 140, and/or may further provide electronic signal tones representative of noise exposure level.

[0032] In an embodiment shown in FIG. 3B, housing 109 is configured as two ear pieces that fit either over the user's ear or around the user's ear and are connected by an adjustable headband. In the embodiment illustrated in FIG. 3B, the housing 109 (configured as two ear pieces) are attached to hearing protection element 120, which comprise sound attenuating material disposed around the outer edge of each earpiece. In another embodiment illustrated in FIG. 3C, the housing 109 is configured to be in the form of cylindrical, bullet-shaped, flanged, or custom molded earplugs for insertion into the user's ear. In the embodiment illustrated in FIG. 3C, the housing 109 may be configured to be in a shape that provides comfortable and secure placement in the concha of a user's ear, and the housing 109 may be made of hearing protection element 120. In some embodiments, hearing protection element 120 comprises standard polymer materials of the sort that are used for hearing aids, and ear plugs, and the hearing protection element 120 may comprise a resilient slowly re-expanding shape retaining polymer (i.e., a foam-like material that, when compressed, will re-expand towards the original configuration that housing 109 is in when not

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under compression) which includes polyvinyl chloride (PVC) and/or polyurethane (PUR) or other materials suitable for earplugs and other hearing protection devices.

[0033] In some embodiments, a NMD 102 may provide hearing protection via hearing protection element(s) 120 that are configured to support active and/or passive noise cancellation and may be configured to provide hear-through capabilities. This may be because in some embodiments, NMD 102 is worn by a user during their work shift. For example, regarding hear-through capabilities, the sound captured by the outer microphone 104 may be converted to digital signals and provided to a processor of circuit 110. The processor may filter the external sound detected by the outer microphone 104 (by filtering the signal to ensure that sounds are only reproduced at a safe level) and direct the speaker 107 to generate the filtered sounds within the user's ear (thereby allowing hear-through capabilities). In other embodiments, such hear-through could be analog.

[0034] Regarding active noise cancellation, a microphone (e.g., outer microphone 104) is positioned on housing 109 to measure ambient noise. Microphone 104 in one embodiment is positioned on an outside portion of the housing 109. A separate microphone (e.g., inner microphone 106) may be located inside housing 109 (e.g., inside the earpiece and/or earplug illustrated in FIGS. 3B, 3C) and is disposed within the housing 109 to measure sound that the user's ear is exposed to after noise cancellation is performed. The measured noise from the environment (received via outer microphone 104 and inner microphone 106) may be converted to digital signals and provided to a processer of circuit 110 (although in other embodiments, active noise reduction could be analog). The circuit 110 performs noise cancellation calculations and provides a noise cancelling signal to a speaker 107 positioned to transmit cancelling noise sounds into the ear via channel 108. Algorithms for active noise cancellation and control are generally

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known and thus will not be described in detail herein, but may include active noise cancelling feedback of acoustic signals converted by at least one of the microphones (e.g., 104 and/or 106) through the speaker 107. In some embodiments, the transceiver 103 may receive a noise cancellation settings package (which is associated with hearing protection) that is specifically created for a user associated with NMD 102. The amount of noise cancellation (i.e., range of noise cancellation signals produced and transmitted via speaker 107) may be adjusted (i.e., increased and/or decreased) by circuit 110 implementing the noise cancellation settings package. In some embodiments, the amount of hearing protection provided to a user may be activated, adjusted if already activated, and/or deactivated based on saving the noise cancellation settings package to memory of circuit 110. In some embodiments, such as illustrated as ear pieces and ear plugs in FIGS. 3B and 3C, the housing 109 may include the same microphones 104, 106, circuit 110, and speaker(s) 107 such that noise cancelling and hearing protection is provided to both ears of a user. When configured as a passive hearing protection device, NMD 102 may not provide active noise cancellation via speaker 107, but still have noise attenuation material (e.g. noise protection element 120) that decreases the amount of external sound reaching the user's ear.

[0035] In some embodiments, a plurality of NMD's 102 are stationary in location at a work site, such as within the defined area 190 in system 100 of FIG. 1. Put simply, stationary NMD's 102 may be attached at certain, known locations within a work site so that their geo-coordinates (i.e., location) are fixed relative to other portable NMD's that are worn by a user. In embodiments where an NMD 102 is configured to be stationary, the housing 109 may optionally be mounted to a surface via an attachment anchor 111 (e.g., clips, fasteners, harness). The attachment anchor 111 may be implemented to keep housing 109 in a fixed, anchored position (i.e., at a defined location

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that is stationary and known to the NMD 102 and computer system 160 based on the coordinates of the NMD 102 not changing over a defined time period).

[0036] Irrespective of the configuration of housing 109 and whether the NMD 102 is worn by a user or remains stationary (i.e., fixed position), the NMD 102 comprises circuit 110, which has an application 116 and locator unit 118 (although for fixed NMD, the locator unit function could be by providing location data to the computer/fixed NMD unit during the commissioning phase (such that the locator unit for such fixed NMD would basically be data provided to/stored within (e.g. a database/memory accessible by) the computer or fixed NMD unit), and/or in other embodiments the physical locator unit for fixed NMD could be optional). In some embodiments, the transceiver 103 may include a global positioning system (GPS) device that sends GPS signals to locator unit 118 stored within circuit 110. The application 116 and locator unit 118 may be stored in memory of circuit 110 and execute via one or more processors. The locator unit configures circuit 110, upon execution, to receive location information, determine a position (i.e., location) of the NMD 102 and for output a corresponding location data. The locator unit 118 may be provided with location information from transceiver 103 based on received GPS signals, wireless local area network (WLAN) and/or cellular signals received from network node(s) 150, and/or Bluetooth signals using trilateration or fingerprinting methods to determine a geographical position. The circuit 110 may comprise electric circuitry as shown in FIG. 4, which may be configured and/or programmed to achieve several possible functions. By way of example, in an embodiment the outer microphone M1 104 may pick up ambient (external) sound (i.e., sounds received from one or more noise sources 154 in FIG. 1). A signal from the outer microphone M1 104 may be amplified via amplifier E1 802 and then sampled and digitized in an analog-to-digital converter E2 804. The signal may then be fed to a processing unit E3 810 that may be one or more

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digital signal processor (DSP), a microprocessor, or a combination of the two. In some embodiments involving active noise cancellation, a signal from the inner microphone M2 106, which picks up sound in the user's ear between the hearing protection element 120 and the user's eardrum, may be amplified via amplifier E4 812, then sampled and digitized in the analog-to-digital converter E5 815, and then fed to the processing unit E3 810. The processor 810 may generate a digital signal for noise cancellation and/or to provide instructions or a warning tone to the user via execution of application 116 (which is stored in one of the memory elements discussed below). Once generated in the processing unit E3 810, the output signal is converted to analog form in the digital-to-analog converter E7 817 and fed to the analog output amplifier E6 820 that drives the speaker 107. In some embodiments, the output sound signal produced by the speaker SG 107 is fed to the user's eardrum (tympanum) via channel 108. In embodiments where the user is not wearing the NMD 102 over and/or in their ear, the speaker 107 may generate an output sound, tone, and/or instruction within the defined area 190 so that a user may be alerted to the potentially hazardous noise event.

[0037] The processing unit E3 810, in this embodiment, is connected to memory elements such as flash memory E13 825, RAM (random access memory) E8 827, ROM (read only memory) E9 830, and EEPROM (electronically erasable programmable read only memory) E10 832. The memories or computer readable storage devices E8, E9, E10, and E13 are used for storing computer programs (e.g., application 116 and locator unit 118) used to cause a processor 810 to perform algorithms such as noise cancellation, sound exposure calculations, noise mapping data (i.e., received sound level data and location data), instructions and/or tones for alerting the user via speaker 107, or any other audible dialog or sound commanded by the computer system 160 and/or

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other NMD's 102. The storage devices may also store one or more of, filter coefficients, test responses, test results, sound exposure data, analysis data, location data, and/or other relevant data.

[0038] The circuit 110 may allow for each NMD 102 to be connected to other NMD's via interface E12 840 (which may be via wireless transmission through a digital radio link represented at 842 coupled to transceiver 103, such as via a Bluetooth standard, WiFi protocol, cellular technology, etc.). A manual control signal may be generated in E11 845 and fed to the processing unit E3 810 via connection 850. The control signal may be generated using a user interface (e.g., interface 113) via buttons, switches, touchscreen etc. and may be used to turn the unit on and off, to change operation mode, to signal responses, or input commands. When a user inputs commands via the interface 113, the specific input (e.g., via certain buttons and/or in response to touchscreen input) may be individually assigned to generate these control signals, or may control one or more different functions depending on different modes of operation. In an alternative embodiment, a predetermined voice signal from the user may serve as one or more control signals and picked up by one of the microphones 104, 106. The circuit 110 may be powered by power source 112 via the power supply 855 (e.g., via a primary or rechargeable battery arranged in the ear terminal or in a separate unit, or may be an electrical power connection).

[0039] The application 116 that executed on circuit 110 detects and determines environmental noise on a geographical (i.e., location) basis. In addition, the circuit 110 may determine individual noise patterns to which a specific user is exposed (e.g., a worker associated with a user identifier stored in datastore 156, which may be mapped to noise mapping device 102 upon being checked in/out by the worker when their work shift begins/ends. The noise data sent to the noise map application 166 of computer system 160 may include the time or the period of the noise recording in the defined area 190. When analyzed in combination with the sound level value, the noise data

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provides a measurement of intensity for the environmental sound as it corresponded with the time of day. This allows for calculation of the average and/or overall noise exposure amount for the user over a defined period while in the defined area 190. In some embodiments, the circuit 110 may compare the received noise signals (from one of the microphones 104, 106) with a stored noise distribution list of known environment sounds and/or noise levels (e.g., a list stored in memory of the circuit 110 that comprises threshold values, measured in dB) thereby allowing for circuit 110 to assess whether the environmental sounds are industrial, work, machine, or road noise, or whether the environmental sounds correspond with normal speech that may not be hazardous to human ears.

[0040] The circuit 110 may reduce consumption of power from power source 112 (e.g., a battery) by only storing and transmitting noise data having certain noise values, such as when the received sound signals exceed at least one stored thresholds. For example, when the received noise signals are in excess of 80 dB and continue for ten seconds, the circuit 110 determines that a threshold (stored in memory) is exceeded, and the received signal is converted into noise data for transmission to the computer system 160. In some embodiments, the circuit 110 may determine that power source 112 is not a battery, but instead corresponds with a power supply via connection with a wall outlet. When not running on battery power, the circuit 110 (via execution of application 116) may generate noise data irrespective of whether the received noise signals (from the microphones 104, 106) exceed a threshold (i.e., exceed stored sound level (e.g. dB values)). In some embodiments, the circuit 110 may use locator unit 118 to broadcast its location to other noise mapping device 102 that are proximately located (i.e., within a distance that allows a transceiver of a noise mapping device to receive the broadcast). In some embodiments, the circuit 110 broadcasts its location (and in some embodiments also broadcasts its detected noise data) (i.e., sends a packet

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comprising geolocation coordinates and an identifier of the noise mapping device) when it is not running off of a power source 112 that is depletable (i.e., when it is running off a wall unit instead of a battery that can be drained of its stored power). For example, when not running off a battery, the noise mapping device may locally broadcast a packet comprising geolocation coordinates, an identifier of itself, and noise data spanning a defined time period. Local broadcasting may be accomplished via Bluetooth and/or short-range WiFi broadcasting, such that other noise mapping devices may receive the broadcasted information when they are within a defined distance (e.g. ten meters) of the device doing the broadcasting.

[0041] In some embodiments, the NMD 102 measures noise levels as a time-averaged value. For example, a time-averaged value may be the time average sound level and may be colloquially referred to as the "equivalent continuous sound level" (which hereinafter may be referenced as L_{AT} which may comprise LAeq,T (e.g. A for A-weighted level, eq for equivalent and T for time duration - so for example, LAeq,8h for an eight hour equivalent level)), which is detected and determined (e.g., by NMD 102 and/or computer system 160). The equivalent continuous sound level may be included in the noise data sent from the NMD 102 to the computer system 160.

[0042] Continuing with discussion of FIG. 1 with reference to FIG. 2, the system 100 includes computer system 160 that generates a noise map 170. FIG. 2 illustrates an embodiment of a dynamic and real-time noise map 170 that is created via computer system 160 for display (locally and/or remotely) on display 168. Application 166 executes on computer system 160 receives noise data (comprising noise level values and location information) from a plurality of NMD's 102a-102z to create a noise distribution map (referred to as noise map) 170 across a predetermined area 190. In the embodiment illustrated in FIG. 2, some of the noise mapping devices may be configured to be stationary (i.e., with fixed geolocations within predefined area 190) and at least

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one noise mapping device is portable (i.e., wearable by a user and/or attached to equipment that moves about the predefined area 190 and changes geolocation). For example, as illustrated in FIG. 2, the predefined area of system 100 may comprise NMD's 102a-102f that are stationary such that they each correspond to a location that does not change over a defined time period. The defined area 190 may also comprise NMD 102z, where NMD 102z is not stationary and is configured to be portable with changing location information (e.g., when worn by personnel moving about the area 190). For example, in some embodiments, the NMD 102z may be configured with a housing 109 and hearing protection element 120 as a hearing protection headset capable of active noise cancellation. In another embodiment, the NMD 102z may be portable, but not have hearing protection elements that allow for passive and/or active noise cancellation.

[0043] As the worker wearing the NMD 102z moves from origin location 180a towards a target location 180b within the area 190, the NMD 102z may receive noise signals and determine location information while moving between the locations. The circuit 110 of NMD 102z may create noise data that comprises at least a combination of the sounds measurements and the location information (multiple geolocation coordinates) and include the noise data in a packet, which the NMD 102z wirelessly transmits application 166 via one or more network nodes 150. Although stationary, each of the NMD's 102a-102f may perform the same functions as the moving NMD 102z, and thus, each 102a-102f may independently measure sounds, determine its location (such as by either pulling from memory or comparing with a last known location coordinate), and transmit the packet to application 166 of computer system 160. Each NMD 102a-102z may append an identifier to the packet, where the identifier corresponds with a unique identification of the noise mapping device, which the computer system 160 uses to determine which received packets belong to each NMD 102a-102z.

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[0044] In some embodiments, one or more NMD's 102a-102z may determine their current location within area 190 via GPS signals or by trilateration using multiple network nodes 150. However, there may be a certain allowable error in determining the exact location, due to the sensitivity of GPS and/or radio transceiver interface. Thus, to improve location accuracy, in some embodiments, the location information determined by one NMD may be supplemented with information collected from another NMD. For example, NMD 102z may send a probe message requesting a response message from one or more NMD's 102a-102f (via transceiver(s) 103 of each NMD). The NMD 102z receives, collects, and measures (or derives from responses (e.g., via MAC addresses) the parameters of wireless signals transmitted by the transceivers of other NMD's (i.e., from one or more of NMD 102a-f). The signal parameter measured by the receiving NMD (e.g., NMD 102z receiving signals from one or more of the stationary NMD's 102a-102f) may be any appropriate indicator of distance (e.g., received signal strength indicator (RSSI), time of flight, etc.). Based upon the measured signal parameters, the NMD 102z may determine the stationary NMD (i.e., one of the NMD's 102a-102f) with the best measured signal parameter (e.g., the greatest relative RSSI if RSSI is used, the shortest relative time-of-flight if time-of-flight is used, etc.), and store the unique identifier corresponding to the NMD that had the best measured signal parameter (e.g., NMD 102z determining that NMD 102a has the best measured signal parameter and thus NMD 102z stores the unique identifier of NMD 102a for later use when transmitting to computer system 160).

[0045] In some embodiments, once the NMD 102z determines its own location information and receives the identifier from the other NMD that had the best measured signal parameter (e.g., NMD 102a), the circuit 110 of NMD 102z creates and/or includes at least four portions of information in noise data that is sent to the mapping application 166 executing on computer system

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160. The four portions of the noise data may include 1) the values of measured sound level determined from the received signals (via microphone(s), 2) the location information determined by circuit 110, 3) the NMD's own identifier (e.g., NMD 102z from the above example), and 4) the identifier and signal measurements from the other NMD that had the best measured signal parameter (e.g., NMD 102a from the above example). The circuit 110 may then transmit the noise data (comprising the four portions) to mapping application 166 of computer system 160 via network node 150.

[0046] Upon receipt of the packet, the application 166 executing on computer system 160 saves the noise data (e.g., in memory 164 and/or datastore 156) and attempts to determine a location of the NMD 102 that sent the information (e.g., in this example, NMD 102z). If only location information from the NMD 102z is included in the noise data, then application 166 may extract the geolocation coordinates from the noise data and plot them according to x and y coordinates against a digital blueprint corresponding to the predefined area 190 (i.e., pulling a digital blue print from datastore 156 and overlaying the geolocation coordinates on the digital blueprint). In some embodiments, the digital blue print may be an electronic map file that corresponds with the predefined area 190 known to computer system 160. In embodiments where the NMD 102 sends noise data that comprises information from other devices (e.g., NMD 102z sending noise data with identification and signal parameters pertaining to NMD 102a), the application 166 may verify the accuracy of the location of NMD 102 (e.g., NMD 102z in the above example). In order to determine how accurate the location information is that was determined by NMD 102z, the mapping application 166 extracts the signal parameter measurements and identifier from the noise data, and estimates a location of the NMD 102z based upon the signal measurements.

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[0047] If the signal measurement is based upon RSSI, then the assumption upon which the estimate is based is that the signal attenuates in a manner that is proportionate to distance. By knowing the amplitude of the transmitted signal and amplitude measured by the NMD 102z, the application 166 can calculate a distance from the NMD 102z to each of the other noise mapping devices (e.g., 102a-102f which are stationary and have geolocations known to the application 166). By knowing the distance from the NMD 102z to each of the other NMD's 102a-102f, the application 166 triangulates the position of the NMD 102z by determining the intersection of the distances from each of the other NMD's 102a-102f to the NMD 102z. If the signal measurement is based upon time of flight, then a similar process is used. In this case, the application 166 determines distance based upon the time of flight of the signal from the NMD 102z to each of the other NMD's 102a-102f and triangulates in the same manner.

[0048] Irrespective of verifying and determining the location of NMD 102z using time of flight and/or RSSI, the application 166 may also compare the estimated location of the NMD 102z with the known location of other NMD's 102a-102f to obtain a location error measurement or value. By this, the application 166 may perform the initial determination of location for NMD 102z when first creating the noise map 170, and thereafter may refresh the map dynamically, with new location information, and append the information with the location error measurement or value. This may improve the processing efficiency of the computer system 160, while also improving the battery life of the NMD 102z due to the NMD 102z not having to constantly probe other NMD's (e.g., 102a – 102f) each time noise data is sent, but rather may be performed once or periodically.

[0049] The location error measurement or value may be monitored over a period of time to detect a gradual or rapid degradation of location accuracy. Once the degradation exceeds a defined threshold value stored in datastore 156, the application 166 may push an alert message to display

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168 and/or record the event in a log stored in datastore 156. This noise measurement and location mapping information and reporting processes may be performed by each NMD 102 (e.g., each NMD 102a-102z). In doing so, the application 166 obtains a location error measurement value for each of the NMD's 102a-102z. The location error measurements may be used as a correction factor to correct the estimated locations of the NMD's 102a-102z. The application 166 may adjust its location estimate for a specific NMD 102 (e.g., one of NMD's 102a-102z) by taking into consideration the location errors for several neighboring NMD's.

[0050] The application 166 provides display 168 with a generated noise map 170, such that a predefined area 190 is depicted on the noise map 170, such as illustrated in FIG. 2. Included on the noise map 170 may be a designated location of each of the stationary NMD's 102a-102f and the moving NMD 102z, where NMD 102z is centered at location 174 in the noise map 170.

[0051] Shown on the display 168 around the location 174 of the moving NMD 102z may be a bounding box 172 that indicates the estimated location error of the NMD 102z. For example, if the location error of the other stationary NMD's 102a-102f (closest to the estimated location of the moving NMD 102z) indicates an error of two feet, then the bounding box 172 may be shown around the NMD 102z with sides having at least a length of two feet. Since the error is a vector including x and y components, it is also possible to have a bounding rectangle 172 in which the length of sides are at least the corresponding x and y amounts. However, the bounding box 172 may not be exactly the size of the error measurements as there may be other sources of error that should be considered and that may suggest that the box 172 be larger. Further, rather than a rectangle, the error may be indicated as an area surrounding the estimated location where the shape and size of the area may be proportional to the error vector.

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[0052] With the noise map 170 created, application 166 may determine a trajectory 180 along which NMD 102z is traveling based on the location of the NMD 102z, locations of the other NMD's 102a-102f, and origin location 180a that is pulled from historical noise data and location information previously sent to the application 166. From this, the application 166 identifies a target location 180b corresponding to the direction NMD 102z is moving towards, and then creates a trajectory line (or path) 180 for display on noise map 170. The application 166 also extracts the noise values from the noise data received by each NMD 102 (e.g., NMD's 102a-102z). Based on the sound level values sent from each NMD 102 within the defined area 190, the determined locations of the NMD's 102a-102z, the application 166 determines concentrations of noise levels and determines a location of the noise source 154. For example, the application 166 may use the noise data received from NMD's 102a-102z to determine that the sound level values from NMD 102f are the highest, with sound level values from NMD's 102e, 102b, and 102z being next highest (as measured in sound pressure levels (e.g. dB values)). The application 166 may assign and display zones of noise intensity on the noise map 170, and in some embodiments, may include a different color in each zone. For example, application 166 may define a first zone 191 to be within a first defined distance from noise source 154 (e.g., within 10 feet of noise source 154), a second zone 192 to be within a second defined distance of noise source 154 (e.g., within 20 feet of noise source 154), a third zone 193 to be within a third defined distance of noise source 154 (within 30 feet of noise source 154), and a fourth zone 194 to be within a fourth defined distance of noise source 154 (within 40 feet of noise source 154). In some embodiments, the application 166 may provide each zone with a color intensity that matches the intensity of sound produced by the noise source, where sound levels below 50 dB are colored in green (e.g., fourth zone 194), sound levels between 50-80 dB colored in yellow (e.g., third zone 193), sound levels between 80-100 dB

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colored in red (e.g., second zone 192) and sound levels greater than 100 dB colored in brown (e.g., first zone 191).

[0053] As the sound level values received from the NMD's 102a-102z change, the application 166 determine an noise origin 182a of noise source 154 and the current position of noise source 154. The application 166 determines a target noise endpoint 182b and creates a noise source trajectory 182 based on the noise data (comprising noise values and location information) from each of the NMD's 102a-102f and the determined location of the noise source 154. In some embodiments, the application 166 may detect that NMD 102z will be in danger of being within a hazardous noise zone (e.g., the first zone 191 and/or second zone 192) due to the trajectory 180 of the NMD 102z and the trajectory 182 of noise source 154 intersecting at intersection location 184. In some embodiments, the application 166 may determine the distance from the intersection point 184 to the NMD's 102z current location, and after finding the average velocity of NMD 102z based on the measured noise data from NMD 102z, the application 166 determines the estimated time left before NMD 102z is in danger of incurring a hazardous noise event (e.g., being exposed to sound levels above a defined (dB) value stored in datastore 156, such as 80 dB). In some embodiments, the application 166 may push the noise map 170 to one or more displays 168, which may be accessible for view by the user wearing NMD 102z. In some embodiments, application 166 pushes an alert to NMD 102z with that presents an audio, visual, and/or haptic warning to the user of NMD 102z. For example, application 166 may warn NMD 102z that it is heading into a zone that is producing hazardous noise.

[0054] In some embodiments, the application 166 may use the identifier of NMD 102z to access datastore 156 and identify the user currently assigned to the NMD 102z. The application 166 may determine the level of hearing protection associated with the user currently using NMD

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102z, such as determining that the user should not be exposed to sound levels above 80 dB. The computer system 160 uses application 166 to obtain settings information corresponding to the amount of hearing protection for the user. For example, if the application 166 determines that NMD 102z provides hearing protection via hearing protection elements and active noise cancellation (e.g., hearing protection elements that are configured around the ear and have circuitry 110 that provides active noise cancellation), then the application 166 may push the settings information to the NMD 102z, where the settings information comprises a threshold value for the allowable sound level of the user. The NMD 102z may receive the settings information and update an existing threshold value with the new threshold value from the received settings information. This may allow circuit 110 of NMD 102z to provide active noise cancellation so that sounds heard by the user will be mitigated to below the threshold level (e.g., below 80dB).

[0055] In some embodiments, the application 166 may determine that NMD 102z may not have adequate hearing protection capabilities (e.g., not having active noise cancellation capabilities and/or the hearing protection elements do not provide a high enough NRR value for the user). For example, if (in an embodiment) the NMD 102z is a hear-through device, the application 166 may push an alert to NMD 102z, which upon receipt, provides instructions via the speaker of NMD to head towards the nearest hearing protection dispenser 140. As the user is walking towards the dispenser 140 based on the directions sent by the application 166, the application 166 may also send a release message to dispenser 140 via network node 150, where the release message commands the dispenser 140 to provide the user wearing the NMD 102z with a hearing protection device 142 (e.g., an set of ear plugs and/or ear muffs).

[0056] *(4) Regarding a Moving Noise Source that is a Potential Hazard*

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[0057] In some instances, the computer system might determine from noise data (e.g. the noise data sent from each of the communicatively coupled NMDs) if there is a moving noise source. For example, this might be accomplished in some embodiments by identifying the characteristics of the sound, cross-referencing the location information of the various noise monitoring devices (e.g. which detect such sound characteristics) with the external sound level that the devices pick up from the identified sound source, and using the difference level from various noise monitoring devices to identify/determine the path (and/or speed) of the moving noise source. In some embodiments, the computer system might compare the sounds levels from the detected noise data with sounds levels stored in a database, and based on the comparison, determine what is the cause of the moving noise source (e.g. the identification of the vehicle or other moving machinery that may likely be the cause of the moving noise). The computer system may project a trajectory or anticipated course of movement for the moving noise source (which may be presented on a display in communication with the computer). The computer might then determine if any NMDs are located along the trajectory of the moving noise source and send a warning to any such NMD along the trajectory (so that the user can be aware of a possible physical danger that they might not hear due to wearing of the NMD). Optionally, the computer might also consider movement (e.g. trajectory) of the various other NMDs in the area so that the computer may determine if one or more NMD is likely to intercept the trajectory of the moving noise source (such that a warning might be sent to each NMD that is affected). In other words, in some embodiments, the computer might account for both the trajectory of the NMD and the trajectory of the moving noise source to determine if a warning (regarding a potential physical hazard to the user of the NMD) should be sent to any specific NMD. The warning sent to the NMD might comprise one or more of the following: a sound beacon/tone/beeping that varies in volume based on proximity to moving noise

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source (e.g. volume increases as moving noise source approaches the NMD); adjustment of hear-through settings (so user is more likely to hear moving noise source instead of another electronic communication, thereby allowing the user to avoid interception with the noise source); activating a vibration (e.g., via a vibration unit not shown) that varies in intensity based on proximity to moving noise source; change to tactility of a user interface on the NMD; three dimensional audio; and/or activation of a light that varies in intensity as the NMD gets closer to the moving noise source.

[0058] *(B) Regarding Sharing of a Detected Alarm Between Devices*

[0059] In some instances, the computer might use the generated noise map to detect an alarm based on one or more areas of the noise map corresponding to a higher sounds level than others and/or a specific frequency of sound not normally associated with that zone/area. So for example, if the sound levels are above a certain threshold, such as multiple noise sources each producing sounds above 90 dB and/or an alarm of a certain frequency sounding (e.g. via broadcast speakers, for example of a PA system), then the computer system may instruct NMD's in the area to activate noise cancelling (if possible), warn certain NMDs that other NMD's have detected potentially hazardous noise levels in the area (e.g. in proximity or abutting the alarm zone), direct one or NMD's toward a hearing protection dispenser location, and/or alert the user of all noise monitoring devices in the area/zone and/or adjacent areas/zones and/or moving towards such areas/zones. This type of advanced alarm detection may help to provide for advanced notification to users/workers in an affected zone who might not otherwise hear the high sound levels (or alarm broadcast via a speaker in the room) due to the hearing protection that they are wearing (e.g., a NMD with hearing protection elements). The computer system might further be configured to detect if a NMD is (in an adjacent zone and) moving towards the alarm zone (based on trajectory of NMD's movement

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via use of location data over time) and transmit a warning (e.g. pre-alarm) to such NMD. In other words, the computer could use the detection of an alarm in a zone, in conjunction with the movement/trajectory information about specific NMD outside the zone (for example in adjacent zones) to send either an alarm or a lesser warning to additional NMD's which might be outside the affected zone but which still might benefit from knowing about the alarm in a particular zone. In this way, additional workers might be protected and/or steered clear of potentially dangerous zones (e.g. essentially providing an earlier warning system to those outside the affected zone).

[0060] *(C) Regarding comparing location of a user's NMD in the noise map to the specific individualized hearing threshold for that user*

[0061] In yet other instances, the NMD might be associated with a user (e.g., via the user checking out the NMD by swiping an RFID tag with the worker's identifier, which is then sent to the computer system and the computer associates the worker's identifier with one of the identifiers corresponding to the NMD they are checking out, or otherwise by associating the noise monitoring device serial number and user ID, for example within a database), and the computer might further be coupled to a database storing individual user hearing test data and settings (e.g. thresholds and/or exposure tolerance corresponding to sound levels for a user, measured in dB, which may be lower than the standard threshold). Then, the computer may correlate user's NMD location with noise level (via the noise data and location on the noise map) and compare to the database to determine (in an individualized way) if a warning should be sent to a specific user's NMD (for example, if the specific user wearing the NMD is more sensitive and should not be exposed to such loud noise and/or such frequency of noise, then the computer system may send a warning to that user's NMD before other NMDs in the area). The computer could then transmit a warning to the specific user's NMD recommending movement to another zone based on the noise map (e.g. in

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relation to the user's individualized threshold information and location on the nose map). Additionally (similar to the discussion above about accounting for the movement/trajectory of specific NMD), the computer might also detect if a NMD is (in an adjacent zone and) moving towards the zone having noise in excess of the user's threshold (based on trajectory of NMD movement based on location data over time in comparison to the noise map) and transmit a warning (e.g. recommendation) to such NMD (e.g. regarding the amount of time the user might spend in that zone and/or an alternative zone better suited to the user).

[0062] *(D) Regarding movement of one or more NMDs towards a potential noise danger zone*

[0063] Additionally (similar to the discussion above about accounting for the movement/trajectory of specific NMD), the computer might also detect if a NMD is (in an adjacent zone and) moving towards a noise danger zone (i.e., a predefined distance from a noise source such that sounds within the zone are measurable to be above a defined sound level, such as 100 dB), for example having noise in excess of the user's threshold or over a certain sound pressure (e.g. dB) level (based on trajectory of NMD movement based on location data over time in comparison to the noise map) and transmit a warning (e.g. recommendation) to such NMD (e.g. regarding the amount of time the user might spend in that zone and/or an alternative zone better suited to the user). This might be particularly useful if the user has a lower hearing threshold, such that certain zones should be avoided. Then, for example, the computer might access a database with the individual user information (as discussed above), and use that in conjunction with the noise map and the trajectory of the NMD for that user to issue a warning before a worker enters a zone which might damage his hearing (so that the user would not even enter such a dangerous noise zone).

[0064] *(E) Regarding suggesting or dispensing hearing protection to incoming users based on noise map information for that user's work zone*

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[0065] In some instances, the noise map might be used to help prepare an incoming worker for the specific conditions in the work zone (i.e., predefined area displayable on the noise map and corresponding to where the user works) they will be entering (e.g. using sensed noise data from within that zone from NMDs). So for example, for a new worker coming into a facility for which a noise map is currently being generated via NMDs already in the area, the computer might determine the zone (of the noise map) that the user will be entering (e.g., based on the user checking out a NMD and the computer tracking the movement of the user via the NMD's transmitted location information) and suggest/recommend or provide (e.g. automatically dispense) appropriate hearing protection device to that worker (based on the noise map) before the worker enters a dangerous zone (e.g., dispensing ear plugs for the user to wear). In some instances, the user's specific hearing information/threshold might also be considered when determining the appropriate hpd for that specific user in the specific work zone (e.g., updating a NMD with settings information that updates noise cancellation thresholds for the user's NMD as discussed above). The computer could also determine/estimate the appropriate amount of time that an incoming user with a specific type of hearing protection can safely spend in the work zone (e.g., wearing a NMD that is configured with hearing protection elements and/or wearing hearing protection separately from the NMD worn by the user), and for example, notify the incoming worker up front or provide a signal warning of the expiration of such estimated time and the need for the worker to move out of the zone.

[0066] *(F) Regarding checking hearing protection level vs. sounds in the noise map to determine adequacy of hearing protection*

[0067] In some instances, the computer might compare information for the location and type of NMD the user is wearing with noises and zones on the noise map, which in turn allows the

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computer to determine if the user has sufficient hearing protection in place, and if not (e.g., the user's NMD not having hearing portion elements (such as being configured as an ear plug or ear muffs) or the user's hearing protection device not having a high enough NRR to protect against the noise levels in the zone, thus considering the user's hearing protection to be insufficient/inadequate), and to transmit a warning to the user's NMD if the user's type of hearing protection is found to be inadequate. In some instances, the user's individual NMD may determine if the hearing protection provided by that NMD is adequate (e.g., in the same manner discussed for the computer), and if not, the user's NMD may announce a warning to the user before receiving instructions from the central computer system to do so. The pooled noise data of the data map might also be analyzed (e.g. by computer) to determine over time if hearing protection procurement for a facility and/or a zone/area within a facility should be altered (for example, if more protective hearing protection is needed, based on the collected noise exposure over time). In some instances, each NMD may compare received noise levels with the noise level presented on the noise map in order to serve as a check (i.e., verification) for whether the user's NMD is detecting noise correctly and thus detect possible malfunctions which may be reported to the computer system. If the sound values compared by the NMD using the noise map do not correlate, the NMD may determine that a malfunction exists, and thus send a message to the computer system indicating that data from the noise map data is inconsistent with the noise levels detected by the NMD. In response, the computer may send a notice message to the NMD, noting that the NMD should undergo maintenance, such as by restarting the power to the circuits or updating values stored in the memory of the NMD.

[0068] *(G) Regarding estimating remaining time user may spend in zone based on noise map*

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[0069] In some instances, the computer might generate an estimate of time to spend in the zone (based on location, type of NMD (e.g., whether the NMD is configured with hearing protection elements or not), noise map, and/or individual worker hearing info.) and transmit to the NMD. Such an estimate might also account for user's NMD movement or projected movement, to provide a better estimate of the time remaining for the user in the work area before the user exceeds a threshold for safe exposure to sounds. In some instances, the individual data from the NMD detecting noise could be compared to the noise map (which may include other displayed information), in order to serve as a check for whether the individual NMD is detecting noise correctly (e.g. to detect possible malfunction). If a possible malfunction is detected, then the estimate (of time remaining in the work area) might be calculated based on the time the user has already spent in the area and the data provided by the noise map, rather than relying solely on the individual NMD's detection of sounds. Further, a notice might be sent to the NMD, noting that it needs maintenance.

[0070] *(H) Regarding altering configuration of NMD's that provide hearing protection based on moving noise source trajectory info. from noise map*

[0071] In still other embodiments, the computer might use noise data (e.g. received from the NMD's and used in the creation and display of the noise map) regarding a moving noise source to alter the set-up/configuration of one or more NMD's (that have hearing protection elements) and which are moving along a trajectory that may intersect the moving noise source. For example, the computer may alter/tune active noise cancellation (e.g., adjust the amount of noise cancellation to provide for more noise cancellation and thus hearing protection corresponding to a defined NRR) for any NMD that is configured with active noise cancellation and potentially will enter a hazardous zone while the moving noise source is traveling along its trajectory. The computer may

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receive noise data from one or more NMD in proximity to the moving noise source, determine if any other NMD are located along the trajectory (and/or within the zone) and that would need modification to better address that moving noise source to protect the user's hearing, and transmit a control signal to such NMD along the trajectory so that the noise cancellation settings are modifying on the NMD in advance of such NMD being in proximity to the moving noise source that would exceed a threshold for acceptable noise levels. As discussed above, the computer system may also detect if a NMD is moving towards the trajectory of the moving noise source (based on NMD's own trajectory calculated based on location information determined by the NMD over time) and alter the set-up/configuration of such NMD by activating noise cancellation and/or thresholds for noise cancellation. In other words, the configuration of the NMD (which has hearing protection elements) might be altered by taking into account the relative movement of the moving noise source relative to the NMD, to more finely tune the hearing protection functions of the NMD (for example, adjusting frequency ranges of an active noise cancellation filter of the NMD).

[0072] In some embodiments, the system might further comprise one or more fixed NMD's (i.e., NMD's that are not worn by the user but instead remain at a stationary position within a defined area of the noise map, which might include semi-fixed monitors installed for short duration for example). Each NMD that is stationary may comprise the same elements as NMDs which are portable (e.g. having a microphone, circuit, transceiver configured/operable to communicate with the computer). In some embodiments, a user's work area have one or more stationary NMD such that the noise map might be generated using a combination of noise data from NMD's that are fixed (i.e., have a stationary, non-moving location in the area) and NMD's that are portable, thereby allowing for changing location as the user wears the NMD and moves about the area. In

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such instances, the use of noise data from NMD's which are fixed and data from NMD's that are portable allow for enhanced location accuracy in the creation and refreshing of the noise map. This may allow for a system in which a noise map is generated (e.g. for a facility) from multiple noise monitoring devices (which might be fixed and/or mobile), and then used to dynamically adjust NMD's with hearing protection capabilities (e.g., with hearing protection elements and/or noise cancellation) so as to improve the safety of and enhance the user's productivity by shielding the worker from dangerous noise levels before they are exposed to them. It should also be understood that embodiments of NMDs that are implemented in systems disclosed herein may or may not have hearing protection features, such that one of ordinary skill in the art would consider a NMD with hearing protection elements to be a type of hearing protection device. The NMDs of the present disclosure may not be required to have hearing protection elements, and thus the user may – in some embodiments – have hearing protection devices that are independent of the NMD's described herein (such that an independent/separate NMD is configured without hearing protection and used alone or in conjunction with a user wearing a separate hearing protection device that does not have noise detection, monitoring, or mapping capabilities). Thus, any reference above to NMD could also include an independent hearing protection device instead of or in addition to, an NMD that has integrated hearing protection elements.

[0073] As noted above, in some embodiments the noise map could be used in combination with a worker location tracking system, such that the person/worker not wearing any noise monitoring NMD/hpd could still have their noise exposure data determined and stored by the computer by combining the worker's location throughout the work day compared with the noise levels available through the mapped data (e.g. from the NMD) at the time that such person/worker is located in a given area/zone (with known noise level in such zone(s) due to the noise map) (e.g.

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correlating such a worker's location with the measured noise data from other NMD). In other words, the noise map could be used in combination with a worker location tracking system, such that a person not wearing a noise monitoring HPD / NMD could still have their noise exposure data stored by the computer (e.g. by combining their detected location throughout the working day compared with the noise levels measured through the mapped data corresponding to such locations for that person). Due to the noise map, we know the noise level in a given area/zone (for example of a facility); so if we know who is working in that area (due to the location tracking system/worker location device) we can calculate their noise exposure (even if the worker moves across multiple zones during the work day). In such embodiments, the location of the worker/user (e.g. without a NMP/hpd) would still be needed, for example via a worker location tracking system and/or worker locator device/unit (which might for example include a locator device worn by the worker/user (e.g. GPS) and/or (fixed/separate/independent) locator device/sensors/system operable/configured to detect user/worker location. Such a worker location tracking system (e.g. which might include a worker locator device) would typically communicate with the computer (e.g. providing worker location data to the computer). The computer could link/correlate worker location data with the noise data of the noise map (and store this calculated noise exposure data in a database) to allow for that worker's estimated (e.g. approximate) noise exposure to be determined. Such an estimated noise exposure could be used to monitor noise exposure without the need for personalized NMD (e.g. worn by the workers) and/or could be used to monitor the noise exposure for certain workers who might not be wearing NMD. For example, this approach may be particularly useful for noise areas/zones that are around the 80 – 85dB levels, which are borderline areas that may not normally require the use of hearing protection. In some embodiments, the computer might transmit an alert/warning (e.g. by speaker on the worker locator

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device or PA system, etc.) to such worker(s) without NMD, for example warning of approaching or exceeding threshold/limit and/or need to move away from the zone (and perhaps directing such worker(s) to a safe zone based on the noise map).

[0074] As also noted above, the noise map (e.g. pooled noise data) might also be used to listen for (e.g. detect) equipment malfunction based on noise level changes (e.g. excessive noise, for example above a specific level/threshold) and/or specific detected noise (e.g. specific frequencies), typically outside the norm for the area/zone; and in some instances the location data for (e.g. associated with) the various noise data can be used to interpolate/estimate the location of the malfunction (e.g. the source, perhaps in comparison to prior readings over time). So for example, the pooled noise data from the plurality of noise monitoring devices is actively listening to the machinery of the facility, and detecting abnormalities in the sound of the machinery/equipment may predict machine failures, potential downtimes, and/or need for maintenance. This may allow for rapid deployment of maintenance (personnel), for example possibly in the early stages of malfunction before significant equipment damage occurs or significant risk of injury arises. Similarly, by recording in memory the noise map (pooled noise data) over time, it may be possible to employ noise level/map replay for recreating and/or problem solving (for example in the event of failure and/or alarm event).

[0075] Other potential uses of the pooled noise data might include analysis of a dynamic noise map (e.g. pooled noise data over time) to improve job planning system, for example so that the job planning system (which might be software running on the computer) is able to determine/calculate the optimum work time for specified tasks by users based on noise data for a given period of time (e.g. within a work shift), and/or to determine appropriate staffing for specific tasks and/or areas/zones in the facility based on user exposure history and/or individualized hearing threshold

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or exposure tolerance; and/or preemptively deciding when to add noise cancellation (e.g. at certain frequencies) when threshold for area/zone is approaching, and/or NMD reacting to the environment (e.g. sensed noise as correlated by the noise map) by adjusting hear through or noise cancelling function's within the HPD (for example, in instances other than merely to account for moving noise source as discussed in more detail in sections (a) and (h) above). Furthermore, NMD gathering noise data for correlation into a noise map could also be used in some embodiments for environmental (e.g. external to facility) noise mapping. For example, the noise map could include noise from a facility or from an arrangement (ex: concert) (e.g. external noise projected out of a facility). Under some circumstances, there can be limits to how much noise a facility or arrangement can "let out" (e.g. noise pollution). Under such circumstances, monitoring the noise at the border of the facility or arrangement and/or close to relevant "receivers" (e.g. neighbors) and storing this for documentation might be valuable (for example, to allow for re-engineering to reduce noise pollution). So for example, (fixed) NMD may be located outside (e.g. around the perimeter) of the facility and/or in proximity to relevant receivers (e.g. neighbors), and their noise data could allow the computer to generate a noise map indicative of external noise projected out of the facility (e.g. noise pollution). In some embodiments, the computer might also analyze the noise data to identify specific noise sources (e.g. based on the known frequency range of certain equipment) to help identify particular culprits with respect to noise pollution, which might be candidates for re-engineering to reduce noise. These and other uses for the pooled noise data are contemplated.

[0076] FIG. 5 illustrates a computer system 380 suitable for implementing one or more embodiments disclosed herein, such as features of system 100 in FIGS. 1-4, including one or more computer system 160, datastore 156, network node 150, dispenser 140, and operations disclosed in

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FIGS. 2, 3A-3D, and 4. The computer system 380 includes a processor 382 (which may be referred to as a central processor unit or CPU) that is in communication with memory devices including secondary storage 384, read only memory (ROM) 386, random access memory (RAM) 388, input/output (I/O) devices 390, and network connectivity devices 392. It is understood that use of the term "memory" in the claims does not include transitory signals. The processor 382 may be implemented as one or more CPU chips.

[0077] It is understood that by programming and/or loading executable instructions onto the computer system 380, at least one of the CPU 382, the RAM 388, and the ROM 386 are changed, transforming the computer system 380 in part into a particular machine or apparatus having the novel functionality taught by the present disclosure. It is fundamental to the electrical engineering and software engineering arts that functionality that can be implemented by loading executable software into a computer can be converted to a hardware implementation by well-known design rules. Decisions between implementing a concept in software versus hardware typically hinge on considerations of stability of the design and numbers of units to be produced rather than any issues involved in translating from the software domain to the hardware domain. Generally, a design that is still subject to frequent change may be preferred to be implemented in software, because re-spinning a hardware implementation is more expensive than re-spinning a software design. Generally, a design that is stable that will be produced in large volume may be preferred to be implemented in hardware, for example in an application specific integrated circuit (ASIC), because for large production runs the hardware implementation may be less expensive than the software implementation. Often a design may be developed and tested in a software form and later transformed, by well-known design rules, to an equivalent hardware implementation in an application specific integrated circuit that hardwires the instructions of the software. In the same

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manner as a machine controlled by a new ASIC is a particular machine or apparatus, likewise a computer that has been programmed and/or loaded with executable instructions may be viewed as a particular machine or apparatus.

[0078] Additionally, after the system 380 is turned on or booted, the CPU 382 may execute a computer program or application. For example, the CPU 382 may execute software or firmware stored in the ROM 386 or stored in the RAM 388. In some cases, on boot and/or when the application is initiated, the CPU 382 may copy the application or portions of the application from the secondary storage 384 to the RAM 388 or to memory space within the CPU 382 itself, and the CPU 382 may then execute instructions that the application is comprised of. In some cases, the CPU 382 may copy the application or portions of the application from memory accessed via the network connectivity devices 392 or via the I/O devices 390 to the RAM 388 or to memory space within the CPU 382, and the CPU 382 may then execute instructions that the application is comprised of. During execution, an application may load instructions into the CPU 382, for example load some of the instructions of the application into a cache of the CPU 382. In some contexts, an application that is executed may be said to configure the CPU 382 to do something, e.g., to configure the CPU 382 to perform the function or functions promoted by the subject application. When the CPU 382 is configured in this way by the application, the CPU 382 becomes a specific purpose computer or a specific purpose machine, sometimes referred to as a special purpose machine.

[0079] The secondary storage 384 is typically comprised of one or more disk drives or tape drives and is used for non-volatile storage of data and as an over-flow data storage device if RAM 388 is not large enough to hold all working data. Secondary storage 384 may be used to store programs which are loaded into RAM 388 when such programs are selected for execution. The

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ROM 386 is used to store instructions and perhaps data which are read during program execution. ROM 386 is a non-volatile memory device which typically has a small memory capacity relative to the larger memory capacity of secondary storage 384. The RAM 388 is used to store volatile data and perhaps to store instructions. Access to both ROM 386 and RAM 388 is typically faster than to secondary storage 384. The secondary storage 384, the RAM 388, and/or the ROM 386 may be referred to in some contexts as computer readable storage media and/or non-transitory computer readable media.

[0080] I/O devices 390 may include printers, video monitors, liquid crystal displays (LCDs), touch screen displays, keyboards, keypads, switches, dials, mice, track balls, voice recognizers, card readers, paper tape readers, or other well-known input devices.

[0081] The network connectivity devices 392 may take the form of modems, modem banks, Ethernet cards, universal serial bus (USB) interface cards, serial interfaces, token ring cards, fiber distributed data interface (FDDI) cards, wireless local area network (WLAN) cards, radio transceiver cards that promote radio communications using protocols such as code division multiple access (CDMA), global system for mobile communications (GSM), long-term evolution (LTE), worldwide interoperability for microwave access (WiMAX), near field communications (NFC), radio frequency identity (RFID), and/or other air interface protocol radio transceiver cards, and other well-known network devices. These network connectivity devices 392 may enable the processor 382 to communicate with the Internet or one or more intranets. With such a network connection, it is contemplated that the processor 382 might receive information from the network, or might output information to the network in the course of performing the above-described method steps. Such information, which is often represented as a sequence of instructions to be

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executed using processor 382, may be received from and outputted to the network, for example, in the form of a computer data signal embodied in a carrier wave.

[0082] Such information, which may include data or instructions to be executed using processor 382 for example, may be received from and outputted to the network, for example, in the form of a computer data baseband signal or signal embodied in a carrier wave. The baseband signal or signal embedded in the carrier wave, or other types of signals currently used or hereafter developed, may be generated according to several methods well-known to one skilled in the art. The baseband signal and/or signal embedded in the carrier wave may be referred to in some contexts as a transitory signal.

[0083] The processor 382 executes instructions, codes, computer programs, scripts which it accesses from hard disk, floppy disk, optical disk (these various disk based systems may all be considered secondary storage 384), flash drive, ROM 386, RAM 388, or the network connectivity devices 392. While only one processor 382 is shown, multiple processors may be present. Thus, while instructions may be discussed as executed by a processor, the instructions may be executed simultaneously, serially, or otherwise executed by one or multiple processors. Instructions, codes, computer programs, scripts, and/or data that may be accessed from the secondary storage 384, for example, hard drives, floppy disks, optical disks, and/or other device, the ROM 386, and/or the RAM 388 may be referred to in some contexts as non-transitory instructions and/or non-transitory information.

[0084] In an embodiment, the computer system 380 may comprise two or more computers in communication with each other that collaborate to perform a task. For example, but not by way of limitation, an application may be partitioned in such a way as to permit concurrent and/or parallel processing of the instructions of the application. Alternatively, the data processed by the

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application may be partitioned in such a way as to permit concurrent and/or parallel processing of different portions of a data set by the two or more computers. In an embodiment, virtualization software may be employed by the computer system 380 to provide the functionality of a number of servers that is not directly bound to the number of computers in the computer system 380. For example, virtualization software may provide twenty virtual servers on four physical computers. In an embodiment, the functionality disclosed above may be provided by executing the application and/or applications in a cloud computing environment. Cloud computing may comprise providing computing services via a network connection using dynamically scalable computing resources. Cloud computing may be supported, at least in part, by virtualization software. A cloud computing environment may be established by an enterprise and/or may be hired on an as-needed basis from a third party provider. Some cloud computing environments may comprise cloud computing resources owned and operated by the enterprise as well as cloud computing resources hired and/or leased from a third party provider.

[0085] In an embodiment, some or all of the functionality disclosed above may be provided as a computer program product. The computer program product may comprised on one or more non-transitory computer readable storage medium having computer usable program code embodied therein to implement the functionality disclosed above. The computer program product may comprise data structures, executable instructions, and other computer usable program code. The computer program product may be embodied in removable computer storage media, non-removable computer storage media, or any combination therein. The removable computer readable storage medium may comprise, without limitation, a paper tape, a magnetic tape, magnetic disk, an optical disk, a solid state memory chip, for example analog magnetic tape, compact disk read only memory (CD-ROM) disks, floppy disks, jump drives, digital cards,

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multimedia cards, and others. The computer program product may be suitable for loading, by the computer system 380, at least portions of the contents of the computer program product to the secondary storage 384, to the ROM 386, to the RAM 388, and/or to other non-volatile memory and volatile memory of the computer system 380. The processor 382 may process the executable instructions and/or data structures in part by directly accessing the computer program product, for example by reading from a CD-ROM disk inserted into a disk drive peripheral of the computer system 380. Alternatively, the processor 382 may process the executable instructions and/or data structures by remotely accessing the computer program product, for example by downloading the executable instructions and/or data structures from a remote server through the network connectivity devices 392. The computer program product may comprise instructions that promote the loading and/or copying of data, data structures, files, and/or executable instructions to the secondary storage 384, to the ROM 386, to the RAM 388, and/or to other non-volatile memory and volatile memory of the computer system 380.

[0086] In some contexts, the secondary storage 384, the ROM 386, and the RAM 388 may be referred to as a non-transitory computer readable medium or a computer readable storage media. A dynamic RAM embodiment of the RAM 388, likewise, may be referred to as a non-transitory computer readable medium in that while the dynamic RAM receives electrical power and is operated in accordance with its design, for example during a period of time during which the computer system 380 is turned on and operational, the dynamic RAM stores information that is written to it. Similarly, the processor 382 may comprise an internal RAM, an internal ROM, a cache memory, and/or other internal non-transitory storage blocks, sections, or components that may be referred to in some contexts as non-transitory computer readable media or computer readable storage media.

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[0087] In some embodiments, the NMD (such as portable/wearable hpd) may include a visual indicator (e.g. one or more lights) which may relate to and/or be indicative of noise data (for example, with respect to the specific NMD/hpd and/or the zone/area of the facility that the NMD/hpd is located in). Fig. 6 illustrates an exemplary hpd with visual indicator (e.g. multi-segmented visual light indictor, so for example the number of such multi-segmented lights illuminated might vary depending on conditions (e.g. based on the data), such that the illuminated portion might change in size and/or color and/or intensity and/or illumination pattern (e.g. such as flashing/pulsing in one or more rhythms)). In some embodiments, the NMD/hpd could receive data from (e.g. be in communication with) the system/computer (e.g. with noise map data), and the visual indicator might display accordingly (e.g. in response to such data). Visual indicator embodiments could be used for various purposes (e.g. to display various information), including by way of example the following:

[0088] 1. Using the NMD/hpd to report accumulated exposure for the worker through visual indication to co-workers (e.g. so that the visual indicator is indicative for exposure of the worker wearing the device (for example, showing personal noise exposure of such worker under the hpd)). The NMD/hpd could determine/calculate or receive such a determination/calculation from the system/computer regarding the level of noise exposure of the worker (e.g. despite any hearing protection/attenuation), for example based on a microphone of the NMD/hpd and/or the noise map data from the system/computer (e.g. which calculation might account for the known attenuation of the NMD/hpd). The level of noise dose (e.g. from the calculation) could then be visually indicated on the exterior of the headset using a lighting effect (e.g. using the visual indicator). In other words, if the NMD/hpd has an internal microphone (e.g. underneath the hearing protection element, so as to measure actual noise incident on the worker's ear), then the

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visual indicator might be illuminated based on the actual measured data from the microphone. If, however, the NMD/hpd has an exterior microphone (configured to measure the external environmental noise level), then the visual indicator might illuminate based on a calculation that uses the measured microphone sound level and the known attenuation of the NMD/hpd (e.g. in order to determine the estimated noise incident on the ear of the worker). On the other hand, such a calculation could use the noise map data (e.g. from the system/computer, representing the external environmental noise level) with the known attenuation of the NMD/hpd in order to determine the amount of illumination of the visual indicator. As shown in Fig. 6, this lighting/illumination of the visual indicator can take the form of a ring of LED or light-guides (e.g. with a plurality of separate lights operable to be separately activated) with light driving electronics mounted within the headset. In some embodiments, the orientation of the lighting (of the visual indicator) can be designed such that the amount of accumulated dose is instantly recognizable (e.g. easily discernable) by a third party some distance from the worker wearing the HDP. In other words, the visual indicator could have lights configured (e.g. angled) to increase visibility for those around the wearer (e.g. so that co-workers can quickly see the wearer's exposure and identify if the wearer has been exposed to a potentially dangerous level of noise exposure (e.g. if there is a warning/alert situation)). For example, the visual indicator might have its lights oriented to ensure effective visibility from essentially any angle around the worker wearer. Such an approach may allow a surrounding third-party (e.g. co-worker) to determine if the worker wearer is close to or has exceed the maximum limit for noise for that particular period of time, and this may allow the co-workers to provide an extra check on hearing safety (for example, if the wearer does not notice or intentionally disregards the danger). In some embodiments, the visual indicator can have multiple configurations (e.g. depending on the specifics of illumination of the visual indicator). For

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example, the configuration of the light indicator may have 2 or more (e.g. multiple) color changing segments, and each segment could change color (e.g. by deactivating one color LED and activating another color LED in that segment) or brightness or illuminate representing a progressing increase in noise exposure for the worker. In some embodiments, each side of the headset or other NMD/hpd could be configured to represent the noise exposure for the corresponding ear, while in other embodiments both left and right sides could display the same exposure level (e.g. average exposure). The color and brightness of each visual segment can be configured.

[0089] 2. Using the visual indicator of the NMD/hpd to report/indicate (external) noise level of the environment in which the NMD/hpd user is working through visual indication to co-workers (such that the visual indicator is indicative of the environmental noise level for the section/area). The NMD/hpd could determine/calculate or receive such a determination/calculation from the system/computer regarding the level of noise of the zone/area in which the NMD/hpd is located (e.g. the environmental noise level)), for example based on a microphone of the NMD/hpd and/or the noise map data from the system/computer. The level of environmental noise (e.g. from the calculation) could then be visually indicated on the exterior of the headset using a lighting effect (e.g. using the visual indicator). In other words, if the NMD/hpd has an internal microphone (e.g. underneath the hearing protection element, so as to measure noise incident on the worker's ear), then the visual indicator might be illuminated based on a calculation using the measured noise level from the microphone and the known attenuation of the NMD/hpd (e.g. accounting for the attenuation to calculate how loud the external environment outside the hpd would be). If, however, the NMD/hpd has an exterior microphone (configured to measure the external environmental noise level), then the visual indicator might illuminate based on the actual measured microphone sound level. On the other hand, such a calculation (regarding illumination of the visual indicator) could

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use the noise map data (e.g. from the system/computer, representing the external environmental noise level) to determine the amount of illumination of the visual indicator. As shown in Fig. 6, this lighting/illumination of the visual indicator can take the form of a ring of LED or light-guides (e.g. with a plurality of separate lights operable to be separately activated) with light driving electronics mounted within the headset. When working in external noise environments, the noise level visualization (e.g. provided by the visual indicator) can provide an immediate indication of the presence of dangerous noise levels and prompt any approaching or surrounding worker to don their HPD (in other words, the hope is that such a visual indicator of external noise environment which is visible to other co-workers will help such co-workers to realize if and when they should don their own hearing protection devices). This could be particularly helpful if not all workers in an area/zone have the more advanced type of NMD/hpd (e.g. with microphone and/or warning capabilities), since those other co-workers might be able to take their cues from their fellow workers who do have more advanced NMD/hpd (e.g. based on such visual indicator cues). And as discussed above, if working within an area that benefits from the noise map (e.g. with NMD/hpd as part of a system as described herein), the system can communicate the level of noise of the zone/area to the NMD/hpd (by the means described previously), so that the light visualization (e.g. of the visual indicator) on the headset represents the level of noise of the zone/area in which the headset is located (e.g. using the location information from the NMD in conjunction with the noise map data, the computer may communicate with the NMD regarding the illumination of the visual indicator, so that the visual indicator illuminates to show the environmental noise level of the zone/area in which the NMD is currently located). In some embodiments, the orientation of the lighting (of the visual indicator) can be designed such that the environmental noise level is instantly recognizable (e.g. easily discernable) by a third party some distance from the worker

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wearing the hdp. In other words, the visual indicator could have lights configured (e.g. angled) to increase visibility for those around the wearer (e.g. so that co-workers can quickly see and identify the noise level of the current environment (e.g. if it is sufficiently high that hpd should be donned)). For example, the visual indicator might have its lights oriented to ensure effective visibility from essentially any angle around the worker wearer. Such an approach may allow a surrounding third-party (e.g. co-worker) to determine the environmental noise level by observing the NMD/hpd (of another), so for example they might know when to don their hpd (even if their own hpd is relatively simple (e.g. no microphone) and/or is not part of the system). The specific environmental noise level data shown by the visual indicator could be instantaneous, dynamic, and/or continuous (as discussed above). For example, the device could be configured so that the environmental noise level might be reported over a period of time such as 1, 2, 3, 5, 15, or more minutes, for example representing the time-averaged value over such time period (as discussed above). In some embodiments, the visual indicator can have multiple configurations (e.g. depending on the specifics of illumination of the visual indicator). For example, the configuration of the light indicator may have 2 or more (e.g. multiple) color changing segments, and each segment could change color (e.g. by deactivating one color LED and activating another color LED in that segment) or brightness/intensity or illuminate representing a progressing increase in in noise levels within the immediate environment of the NMD/hpd user. In some embodiments, each side of the headset or other NMD/hpd could be configured to represent the noise level for the corresponding side, while in other embodiments both left and right sides could display the same exposure level (e.g. average exposure or the highest exposure level). The color and brightness of each visual segment can be configured.

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[0090] 3. Using the visual indicator to report/indicate whether fit or seal of hpd is adequate. In some embodiments, the NMD/hpd could automatically sample the external noise (for example, either using an external microphone and/or the noise map from the system/computer) and compare it to the internal noise level (e.g. detected by an internal microphone), in order to determine if the NMD/hpd hearing protection (e.g. attenuation) element(s) are functioning properly (e.g. whether there is a good fit/seal, or whether the hpd should be repositioned to achieve a better fit/seal). For example, if the delta (e.g. difference) between the two noise levels (internal and external) is below a set value, the light guide may alert (e.g. the visual indicator could illuminate to indicate poor fit). In the situation with a noise map (as discussed herein), the NMD location data can be used with the noise map to determine the external noise environment (for example, if the NMD/hpd only has an internal microphone). This external noise data from the system/computer can then be compared to the measured internal noise level (under the hpd, for example measured via an internal microphone). This approach may give an indication of a person at risk of getting an over exposure before the overexposure is a fact. Similar to the discussion above, the visual indicator can be oriented so as to be clearly visible to co-workers (so that they may notice if there is a poor fit and inform the wearer, to serve as a second check).

[0091] 4. Using the hpd visual indication to increase workers visibility in low-light conditions or to represent an alarm situation for the worker. As a potential side benefit to such NMD/hpd with visual indicator, the light indicator on the headset could be configured to display a pre-configured pattern with a specific light color and/or intensity such that the light effect can be enabled when working in dark or unlit conditions. For example, the NMD/hpd might be configured with a light detector, and when it detects a pre-set low level of light (or less), it activates the visual indicator in such a way as to increase worker visibility. Alternatively, the system might

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have such light detectors (for example, at least one per zone), and might communicate with the specific NMD/hpd in areas of low light (based on the NMD/hpd location data) to activate their visual indicator in such a way as to increase worker visibility. Worker visibility could relate to the ability of the worker to see (e.g. illuminating the area around the worker to help them see better) and/or making the worker more visible to others (e.g. so co-workers can clearly see the location of the worker wearer, to avoid collisions for example). In some embodiments, flashing, strobe or repeating (lighting) effect for the visual indicator may create a higher visibility for the worker from a distance and/or can bring attention to the worker if in distress (e.g. such higher visibility light effects might only be activated in response to an indication (from the NMD/hpd itself (such as a sensor mounted thereon) and/or the system/computer in communication with the NMD/hpd (e.g. based on a sensor, etc.)) that there is some sort of worker distress (e.g. by the worker wearing the NMD/hpd) which needs attention). As described above, the visual indicator may in some instances be oriented to increase visibility for third parties (e.g. co-workers).

[0092] Having described above various system and method embodiments, various additional embodiments may include, but are not limited to the following:

[0093] In a first embodiment, a system may comprise a plurality of noise monitoring devices (NMD), each comprising: a microphone and processor for noise monitoring/detection (of external and/or internal noise in the surrounding environment in proximity to the NMD); a locator device (such as GPS, Active RFID, WiFi, Bluetooth, Infrared, and/or Ultrasonic Ranging) operable/configured to determine the location of the NMD (for example, within a facility); and a (wireless) communication device (e.g. wireless transmitter/receiver or transceiver, or in some embodiments, a wired communication device (for example for fixed NMD))(e.g. configured to communicate with or between other NMD (e.g. with the interconnected processors of the NMD

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performing computing tasks, and/or cloud computing and/or some other form of distributed computing performing computing tasks) and/or a separate computer (for performing computing tasks) – and wherein the computing tasks may include pooling noise data from the plurality of NMD, e.g. to create a noise map).

[0094] A second embodiment can include the system of the first embodiment, wherein one or more of the NMD comprises a hearing protection element (e.g. earmuff, earplug, or other element for sealing the ear canal or otherwise protecting the user from external noise)(such that the NMD would be a hearing protection device (hpd) configured to detect noise exposure).

[0095] A third embodiment can include the system of the first or second embodiment, further comprising a remotely located computer/processor (such as a central station computer, comprising a wireless communication device (e.g. wireless received/transmitter or transceiver) configured to: communicate with the plurality of NMD; and use (e.g. pool) the noise monitoring data communicated from the plurality of NMD to generate a noise map; wherein the plurality of NMD are communicatively connected with the computer.

[0096] A fourth embodiment can include the system of any of the first through third embodiments, wherein the noise map may be or comprise dynamic and/or accumulated over time (e.g. cumulative) and/or instantaneous.

[0097] A fifth embodiment can include the system of any of the first through fourth embodiments, wherein the remotely located computer further comprises a display (e.g. a screen) configured/operable to display the noise map (of the facility).

[0098] A sixth embodiment can include the system of any of the first through fifth embodiments, wherein the remotely located computer is configured to extrapolate/interpolate for

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areas of the noise map between the actual measured noise monitoring data points received by the computer from the plurality of NMD.

[0099] A seventh embodiment can include the system of any of the first through sixth embodiments, wherein the computer is configured to determine from noise monitoring data (from the communicatively connected NMD) a moving noise source.

[00100] An eighth embodiment can include the system of the seventh embodiment, wherein the computer is configured to compare the detected noise to a database of known sounds to determine what is the cause of the moving noise source (e.g. what type of vehicle or other machinery is the likely cause of the moving noise).

[00101] A ninth embodiment can include the system of the seventh or eighth embodiment, wherein the computer is configured to extrapolate/project the trajectory/course of the moving noise source (which could be displayed on the screen of the computer).

[00102] A tenth embodiment can include the system of the ninth embodiment, wherein the computer is further configured to determine if any NMD are located along the trajectory of the moving noise source and to send a warning to any such NMD along the trajectory (so that the user can be aware of a possible physical danger that they might not hear due to wearing of hpd, for example)

[00103] An eleventh embodiment can include the system of the tenth embodiment, wherein the computer is further configured to consider movement of NMD to see if it likely intercepts the trajectory of the moving noise source and need to send warning.

[00104] A twelfth embodiment can include the system of the tenth or eleventh embodiment, wherein the warning might comprise one or more of the following: a sound beacon/tone/beeping that varies in volume based on proximity to moving noise source (e.g. volume increases as moving

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noise source approaches NMD/hpd); adjust hear-through (so user more likely to hear moving noise source and be able to avoid); vibration that varies in intensity based on proximity to moving noise source; change to tactility, etc.

[00105] A thirteenth embodiment can include the system of any of the first through twelfth embodiments, wherein the computer is further configured to detect an (audible) alarm (e.g. from a speaker of a PA system, for example via noise data received from one or more NDM) and transmit/share such alarm info. with other NMD in zone of alarm and/or related zone(s) (e.g. in proximity or abutting the alarm zone).

[00106] A fourteenth embodiment can include the system of the thirteenth embodiment, wherein the computer is further configured to detect if a NMD is (in an adjacent zone and) moving towards the alarm zone (based on trajectory of NMD movement based on location data over time) and transmits a warning (e.g. pre-alarm) to such NMD.

[00107] A fifteenth embodiment can include the system of any of the first through fourteenth embodiments, wherein the NMD is associated with a user; and wherein the computer further comprises a database of individual user hearing test data (e.g. threshold/exposure tolerance for specific individual users) and the computer is further configured to correlate user location with noise level and compare to database to determine if a warning should be sent to a user (for example, if the specific user is sensitive and should not be exposed to such loud noise, even if the noise level is below the standard threshold).

[00108] A sixteenth embodiment can include the system of the fifteenth embodiment, wherein the computer is configured to transmit a warning to the user recommending movement to another zone and/or away from a specific zone based on the noise map (e.g. in relation to the user's

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threshold/exposure tolerance information and/or the detected noise from other zones (e.g. noise map data)).

[00109] A seventeenth embodiment can include the system of the fifteenth or sixteenth embodiments, wherein the computer is further configured to detect if a NMD is (in an adjacent zone and) moving towards the zone having noise in excess of the user's threshold/exposure tolerance (based on trajectory of NMD movement based on location data over time) and transmits a warning (e.g. recommendation) to such NMD (e.g. regarding the amount of time the user might spend in that zone and/or an alternative zone better suited to the user).

[00110] An eighteenth embodiment can include the system of the first through seventeenth embodiments, wherein, for a new worker coming in (for example, into a facility or zone), the computer is configured to determine the zone (of the noise map/facility) that the user will be entering and suggest/recommend or provide (e.g. automatically dispense) appropriate hpd/NMD based on noise map.

[00111] A nineteenth embodiment can include the system of any of the first through eighteenth embodiments, wherein the computer is further configured to compare information on the location and type of hpd/NMD to the noise map, determine if hpd/NMD is insufficient/inadequate, and transmit a warning to the hpd/NMD if it is found inadequate.

[00112] A twentieth embodiment can include the system of the nineteenth embodiment, wherein the computer is further configured to generate an estimate of time to spend in the zone (based on location, type of hpd/NMD, and noise map) and transmit to the hpd/NMD.

[00113] A twenty-first embodiment can include the system of any of the first through twentieth embodiments, wherein the computer is configured to use noise monitoring data (e.g. from the noise map) regarding a moving noise source to alter the set-up/configuration of hpd/NMD along the

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trajectory of the moving noise source (e.g. alter/tune active noise cancellation for any hpd/NMD along the course of trajectory of the moving noise source based on information from other hpd/NMD regarding that moving noise source (e.g. in order to earlier make adjustments)).

[00114] A twenty-second embodiment can include the system of any of the first through twenty-first embodiments, wherein the computer is further configured to detect if a hpd/NMD is moving towards the trajectory of the moving noise source (based on trajectory of hpd/NMD movement based on location data over time) and alters the set-up/configuration of such hpd/NMD.

[00115] A twenty-third embodiment can include the system of any of the first through twenty-second embodiments, further comprising one or more fixed noise monitoring/detecting devices (e.g. having a microphone, processor, and wireless communication device configured/operable to communicate with the computer and/or plurality of NMD (for example, at least one such fixed NMD per zone).

[00116] A twenty-fourth embodiment can include the system of any of the first through twenty-third embodiments, wherein the computing tasks (e.g. performed by the computer) comprises population wide analysis of areas/zones within a facility that may need to be engineered to reduce noise emissions, based on the noise map.

[00117] A twenty-fifth embodiment, can include the system of any of the first through twenty-fourth embodiments, wherein the computing tasks (e.g. performed by the computer) comprises using noise detection information (e.g. the noise map) for fault detection (for example to detect part or equipment failure based on noise level outside the expectation (e.g. range) for a zone/area (for example based on pre-knowledge of what an area/zone should sound like and/or based on specific frequency detection indicative of such a failure) and/or help locate such failures by correlating data

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from several noise monitoring devices to determine location, which can then be used to notify maintenance).

[00118] A twenty-sixth embodiment can include the system of any of the first through twenty-fifth embodiments, further comprising a worker location tracking system (such as one or more worker locator devices) operable to determine the location of any workers within a zone/area/facility not wearing NMD/hpd (and in some embodiments, any such worker locator devices might be separate from the NMD/hpd), wherein the computer receives worker location data and correlates that worker location data with the noise data (e.g. from a noise map developed from the NMD) to determine such worker's estimated noise exposure.

[00119] A twenty-seventh embodiment can include the system of the twenty-sixth embodiment, wherein at least some (e.g. at least one) workers do not have/wear NMD (e.g. they only have a separate worker location device).

[00120] A twenty-eighth embodiment can include the system of the twenty-sixth or twenty-seventh embodiments, wherein the computer is configured to send an alert (e.g. to the worker locator device or via PA system, etc.) to any worker not wearing NMD when the worker's estimated noise exposure approaches or reaches threshold/limit.

[00121] While several embodiments have been provided in the present disclosure, it should be understood that the disclosed systems and methods may be embodied in many other specific forms without departing from the spirit or scope of the present disclosure. The present examples are to be considered as illustrative and not restrictive, and the intention is not to be limited to the details given herein. For example, the various elements or components may be combined or integrated in another system or certain features may be omitted or not implemented.

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[00122] Also, techniques, systems, subsystems, and methods described and illustrated in the various embodiments as discrete or separate may be combined or integrated with other systems, modules, techniques, or methods without departing from the scope of the present disclosure. Other items shown or discussed as directly coupled or communicating with each other may be indirectly coupled or communicating through some interface, device, or intermediate component, whether electrically, mechanically, or otherwise. Other examples of changes, substitutions, and alterations are ascertainable by one skilled in the art and could be made without departing from the spirit and scope disclosed herein.

[00123] While various embodiments in accordance with the principles disclosed herein have been shown and described above, modifications thereof may be made by one skilled in the art without departing from the spirit and the teachings of the disclosure. The embodiments described herein are representative only and are not intended to be limiting. Many variations, combinations, and modifications are possible and are within the scope of the disclosure. Alternative embodiments that result from combining, integrating, and/or omitting features of the embodiment(s) are also within the scope of the disclosure. Accordingly, the scope of protection is not limited by the description set out above, but is defined by the claims which follow, that scope including all equivalents of the subject matter of the claims. Each and every claim is incorporated as further disclosure into the specification and the claims are embodiment(s) of the present invention(s). Furthermore, any advantages and features described above may relate to specific embodiments, but shall not limit the application of such issued claims to processes and structures accomplishing any or all of the above advantages or having any or all of the above features.

[00124] Additionally, the section headings used herein are provided for consistency with the suggestions under 37 C.F.R. 1.77 or to otherwise provide organizational cues. These headings

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shall not limit or characterize the invention(s) set out in any claims that may issue from this disclosure. Specifically and by way of example, although the headings might refer to a "Field," the claims should not be limited by the language chosen under this heading to describe the so-called field. Further, a description of a technology in the "Background" is not to be construed as an admission that certain technology is prior art to any invention(s) in this disclosure. Neither is the "Summary" to be considered as a limiting characterization of the invention(s) set forth in issued claims. Furthermore, any reference in this disclosure to "invention" in the singular should not be used to argue that there is only a single point of novelty in this disclosure. Multiple inventions may be set forth according to the limitations of the multiple claims issuing from this disclosure, and such claims accordingly define the invention(s), and their equivalents, that are protected thereby. In all instances, the scope of the claims shall be considered on their own merits in light of this disclosure, but should not be constrained by the headings set forth herein.

[00125] Use of broader terms such as "comprises", "includes", and "having" should be understood to provide support for narrower terms such as "consisting of", "consisting essentially of", and "comprised substantially of". Use of the terms "optionally," "may," "might," "possibly," and the like with respect to any element of an embodiment means that the element is not required, or alternatively, the element is required, both alternatives being within the scope of the embodiment(s). Also, references to examples are merely provided for illustrative purposes, and are not intended to be exclusive.

[00126] While several embodiments have been provided in the present disclosure, it should be understood that the disclosed systems and methods may be embodied in many other specific forms without departing from the spirit or scope of the present disclosure. The present examples are to be considered as illustrative and not restrictive, and the intention is not to be limited to the details

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given herein. For example, the various elements or components may be combined or integrated in another system or certain features may be omitted or not implemented.

[00127] Also, techniques, systems, subsystems, and methods described and illustrated in the various embodiments as discrete or separate may be combined or integrated with other systems, modules, techniques, or methods without departing from the scope of the present disclosure. Other items shown or discussed as directly coupled or communicating with each other may be indirectly coupled or communicating through some interface, device, or intermediate component, whether electrically, mechanically, or otherwise. Other examples of changes, substitutions, and alterations are ascertainable by one skilled in the art and could be made without departing from the spirit and scope disclosed herein.

[00128] Having described the various systems and methods herein, various embodiments of the systems and methods can include, but are not limited to the claims provided herein.

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CLAIMS

What is claimed is:

1. A system comprising:

a plurality of noise monitoring devices, wherein at least one of the noise monitoring devices comprises:

a hearing protection element having a structure that is configured to block noise from entering an ear canal of a user;

a microphone electrically coupled to a circuit having a processor and non-transitory memory, the circuit being configured by an application to:

detect incoming noise signals via the microphone, wherein the incoming noise signals are detected according to a predefined sampling period,

transform the noise signals into noise data by appending values obtained from the signal with the coordinates received from a locator unit,

include location information and an identifier of the noise monitoring device into the noise data, wherein the location information corresponds with coordinates of the noise monitoring device when the noise signal was detected,

instruct the transceiver to at least periodically transmit the noise data in response to at least one of passage of a predefined time period, an external request received via a network, or a combination of the predefined time period and the external request;

a locator unit that, upon execution by a processor of the circuit, determines location information as coordinates corresponding to a geolocation of the noise mapping device, and relays the location information back to the application; and

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a transceiver electrically coupled to the processor of the circuit and configured to transmit the noise data via the network.

2. The system of claim 1, further comprising a remotely located computer system that is communicatively coupled, via the network, to the plurality of noise monitoring devices, the computer system comprising a transceiver coupled to a processor and a non-transitory memory, the non-transitory memory comprising an application that, upon execution, configures the computer system to:

communicate with the plurality of noise monitoring devices and receive noise data from each noise monitoring device;

pool the noise data communicated from the plurality of noise monitoring devices; and

based on the pooled noise data, generate a noise map.

3. The system of claim 1, wherein the remotely located computer system further comprises a display configured to present the noise map in response to reception of the noise map from the remotely located computer system, wherein the noise map is updated on the display by the remotely located computer system, wherein the noise map comprises at least one of distribution of colors having a brightness corresponding to an intensity of noise.

4. The system of claim 1, wherein the computer system is further configured to: determine when one or more noise monitoring device are located along the trajectory path corresponding to the moving noise source; and push at least an audio alarm to the one or more noise monitoring

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device along the trajectory path, wherein the alarm transmits an audible warning indicating presence of noise source within a defined time period.

5. The system of claim 4, wherein the alarm comprises one or more of the following:

an audible sound that, when transmitted through speakers coupled to the noise monitoring device, varies in volume based on the proximity of the noise source such that the volume increases as the noise source approaches one or more noise monitoring device;

an instruction to the circuit of the noise monitoring device that adjusts a hear-through configuration setting of noise cancellation such that the noise monitoring device decreases noise cancellation and allows sound above a predefined threshold to pass to an ear canal, thereby increasing the likelihood that a user hears the noise source and the intercept;

an instruction, to a vibration device electrically coupled to the noise monitoring device, to induce a vibration that varies in intensity based on proximity to the noise source moving along the trajectory path; and

an instruction to change tactility of an interface of one of the noise mapping devices.

6. The system of claim 1, wherein the noise monitoring device is associated with a user; and wherein the computer is coupled to a datastore that stores individual user hearing test data comprising thresholds, and the computer is further configured to correlate location information with sound levels from the noise data, and compare to the thresholds in the datastore to determine if a warning should be sent to a user's noise monitoring device in response to the sound levels being above the thresholds while is at a location of the noise monitoring device.

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7. A method to monitor and map noise data from a plurality of noise monitoring devices (NMD), the method comprising:

detecting incoming noise signals via a microphone of a noise monitoring device, wherein the incoming noise signals are detected according to a predefined sampling period;

determining location information, by a locator unit of the noise monitoring device, as coordinates corresponding to a geolocation of the noise mapping device;

transforming the noise signals into noise data by appending values obtained from the signal with the coordinates received from the locator unit of the noise monitoring device;

including location information and an identifier of the noise monitoring device into the noise data, wherein the location information corresponds with coordinates of the noise monitoring device when the noise signal was detected; and

instructing a transceiver of the noise monitoring device to at least periodically transmit the noise data in response to at least one of passage of a predefined time period, an external request received via a network, or a combination of the predefined time period and the external request;

8. The method of claim 7, further comprising blocking, by a hearing protection element of the noise monitoring device, noise from entering an ear canal of a user.

9. The method of claim 7, further comprising

communicating, by a remotely located computer system, with the plurality of noise monitoring devices;

receiving noise data from each noise monitoring device by the remotely located computer system;

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pooling the noise data communicated from the plurality of noise monitoring devices; and

generating a noise map based on the pooled noise data.

10. The method of claim 9, further comprising:

identifying, by the remotely located computer system, the geolocation of the noise monitoring devices based on the received noise data;

pulling a digital blueprint of the geolocation;

overlaying the noise map with the digital blueprint;

identifying geolocations on the digital blueprint representing areas of the noise map that do have noise monitoring devices that measure noise data from noise sources; and

extrapolating predicted noise levels between each of the geolocations of the noise monitoring devices that receive noise signals.

11. The method of claim 9, further comprising:

determining, by the remotely located computer system, a noise source based on the noise data received from at least one of the plurality of noise monitoring devices; and

based on the determination of the noise source and the noise data, identifying that the noise source is moving relative to at least one of the plurality of noise monitoring devices.

12. The method of claim 9, further comprising:

determining the source by comparison the detected noise data to instances of known sound data stored in non-transitory memory of a communicatively coupled datastore; and

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based on the comparison, determining an identifier corresponding to the known sound data associated with the noise source producing the noise, wherein the noise source corresponds at least one of a speaker, machinery, or a vehicle.

13. The method of claim 9, further comprising:

creating a trajectory of the noise source by identifying the direction of movement of the noise source based on comparing which noise monitoring devices indicate increased intensity of noise data in relation to other noise monitoring devices that indicate a decrease of intensity of noise data from the noise source;

overlaying the trajectory on the noise map to provide a trajectory path of the moving noise source; and

visually presenting the trajectory path in the noise map for on a communicatively coupled display.

14. The method of claim 9, further comprising:

determining when one or more noise monitoring device are located along the trajectory path corresponding to the moving noise source; and

push at least an audio alarm to the one or more noise monitoring device along the trajectory path, wherein the alarm transmits an audible warning indicating presence of noise source within a defined time period.

15. The method of claim 9, further comprising:

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determine that the one or more noise monitoring device is moving based on the received coordinates; and

determine that the noise monitoring device and the noise source will intercept based on the movement of the noise monitoring device and the trajectory path of the noise source moving along the trajectory path, wherein the audio alarm is pushed to the one or more noise monitoring device in response to an intercept probability value exceeding a predefined threshold, and wherein the audio alarm is pushed to the one or more noise monitoring device before the intercept occurs.

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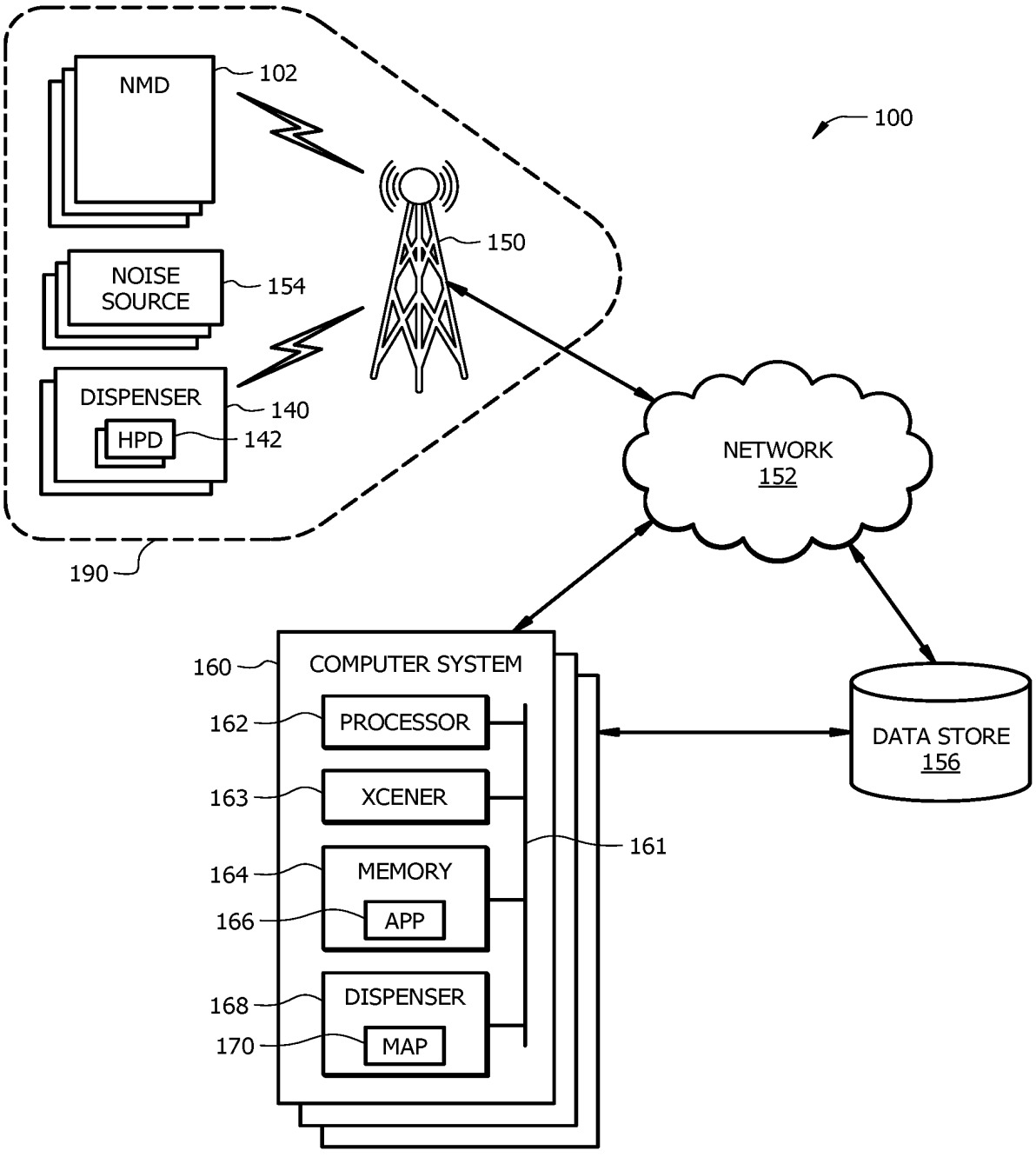

NMD
102
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NOISE SOURCE
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DISPENSER
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HPD
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NETWORK
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160
COMPUTER SYSTEM
162
PROCESSOR
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XCENER
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164
MEMORY
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APP
168
DISPENSER
170
MAP
DATA STORE
156

FIG. 1

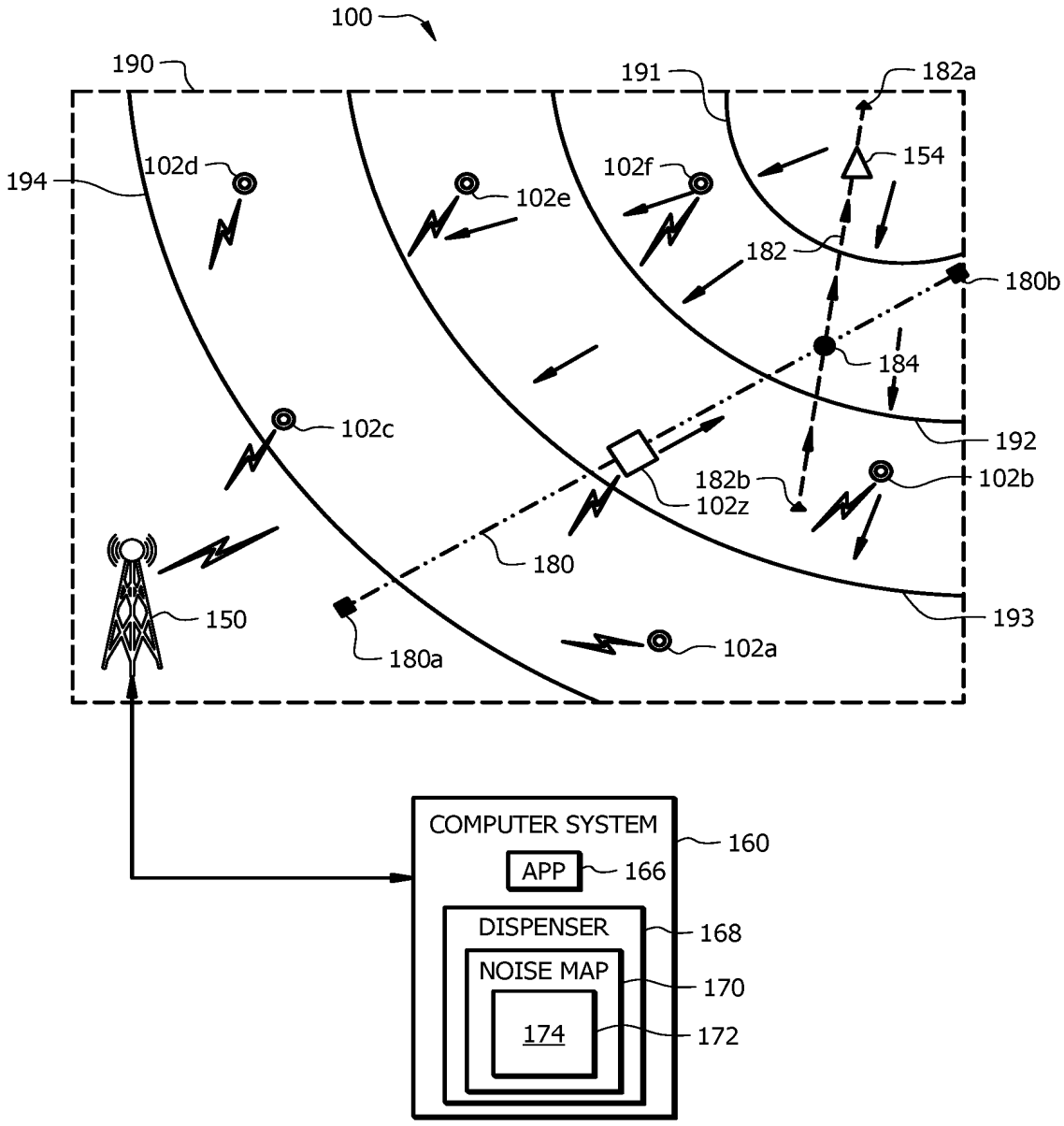

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180b
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102c
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182b
102z
102b
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180a
102a
COMPUTER SYSTEM
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APP
166
DISPENSER
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NOISE MAP
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174
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FIG. 2

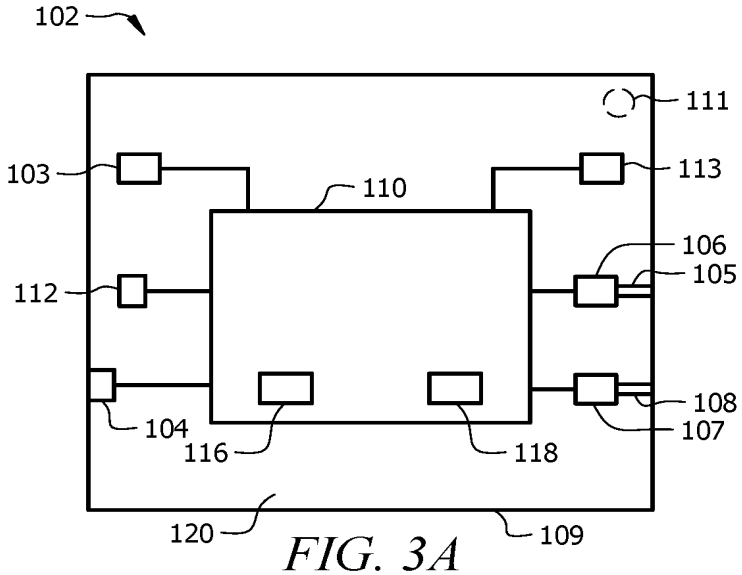


FIG. 3A

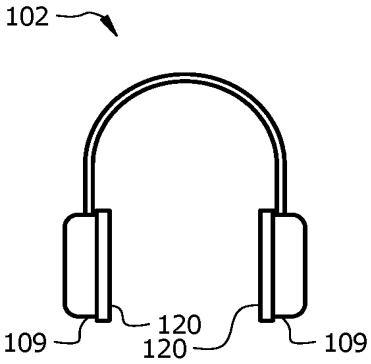


FIG. 3B

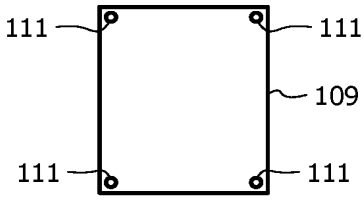


FIG. 3D

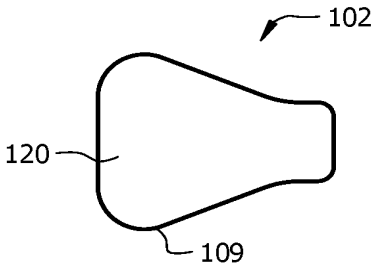


FIG. 3C

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
260 of 1413

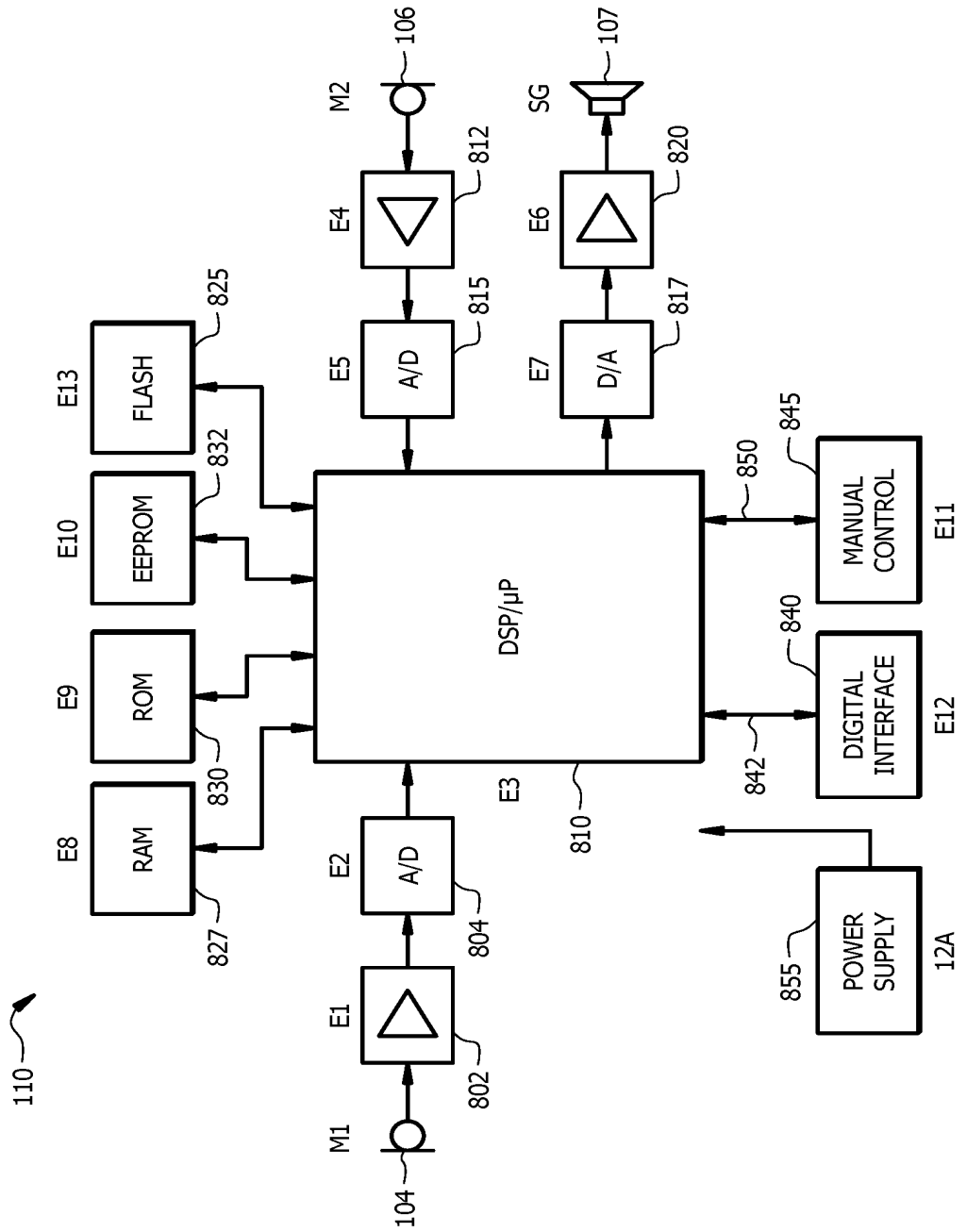

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M1
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E4
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E8
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EEPROM
832
E13
FLASH
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MANUAL CONTROL
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POWER SUPPLY
12A

FIG. 4

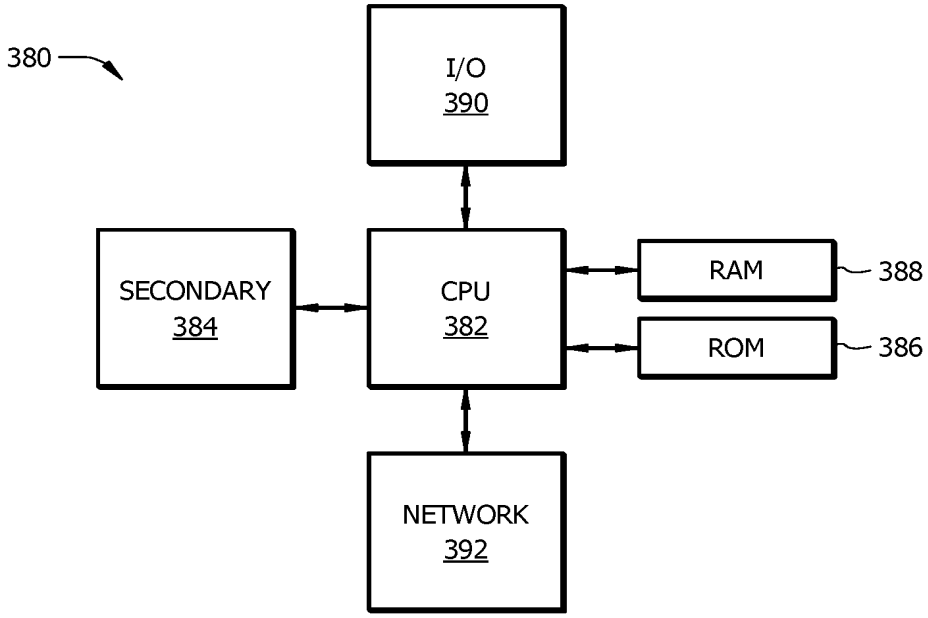

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CPU
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RAM
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ROM
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NETWORK
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FIG. 5

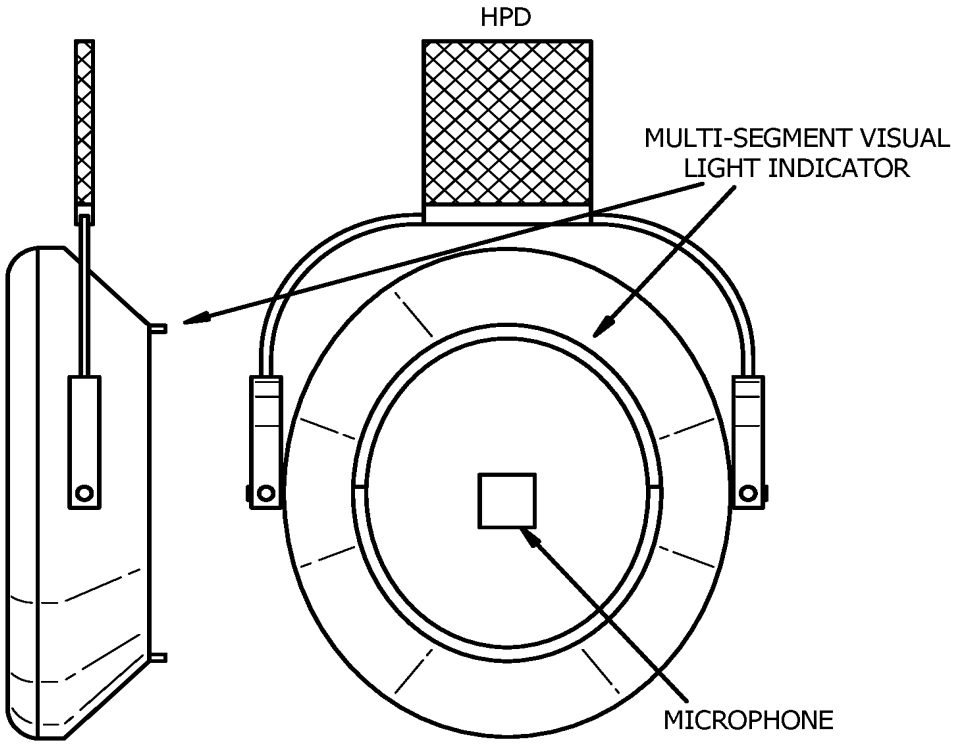

HPD
MULTI-SEGMENT VISUAL
LIGHT INDICATOR
MICROPHONE

FIG. 6

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2018/017335

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04R29/00
ADD. H04R1/10 A61F11/06 G01H3/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H04R A61F G01H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 2010/135502 A1 (KEADY JOHN [US] ET AL) 3 June 2010 (2010-06-03) paragraphs [0152] - [0153], [0169] - [0171], [0173] - [0174]; figures 2a,2c	1-3,6-10 4,5, 11-15
X	US 2015/223000 A1 (BRAN CARY [US] ET AL) 6 August 2015 (2015-08-06) paragraphs [0021], [0023], [0024], [0030], [0036], [0040], [0041]; figures 1,2	1-3,7-10
Y	US 2016/165340 A1 (BENATTAR BENJAMIN D [US]) 9 June 2016 (2016-06-09) paragraphs [0087] - [0089], [0091]	4,5, 11-15

-/--

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
23 April 2018	09/05/2018

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Rogala, Tomasz

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533

1

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2018/017335

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2010/030889 A1 (PERSONICS HOLDINGS INC [US]; GOLDSTEIN STEVEN [US]; BOILLOT MARC [US];) 18 March 2010 (2010-03-18) paragraphs [0042] - [0047]	1-15
A	US 2015/287421 A1 (BENWAY EVAN HARRIS [US] ET AL) 8 October 2015 (2015-10-08) paragraphs [0023] - [0029]	1-15

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2018/017335

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2010135502 A1	03-06-2010	NONE	
US 2015223000 A1	06-08-2015	US 2015223000 A1	06-08-2015
		WO 2015119783 A1	13-08-2015
US 2016165340 A1	09-06-2016	US 2016165340 A1	09-06-2016
		US 2017223473 A1	03-08-2017
WO 2010030889 A1	18-03-2010	EP 2332345 A1	15-06-2011
		JP 2012502596 A	26-01-2012
		US 2010142725 A1	10-06-2010
		US 2013279703 A1	24-10-2013
		WO 2010030889 A1	18-03-2010
US 2015287421 A1	08-10-2015	US 2015287421 A1	08-10-2015
		WO 2015153917 A2	08-10-2015

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533

Electronic Patent Application Fee Transmittal

Application Number:	16143959
Filing Date:	27-Sep-2018
Title of Invention:	USER INTERFACES FOR HEALTH MONITORING
First Named Inventor/Applicant Name:	Christopher D. SOLI
Filer:	Peter Jung-Hyon Yim/Swarnava Chakraborty
Attorney Docket Number:	P38213US2/77770000489102

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	1806	1	240	240
		Total in USD ($)		**240**

Electronic Acknowledgement Receipt

EFS ID:	37492964
Application Number:	16143959
International Application Number:	
Confirmation Number:	6224
Title of Invention:	USER INTERFACES FOR HEALTH MONITORING
First Named Inventor/Applicant Name:	Christopher D. SOLI
Customer Number:	150004
Filer:	Peter Jung-Hyon Yim/Swarnava Chakraborty
Filer Authorized By:	Peter Jung-Hyon Yim
Attorney Docket Number:	P38213US2/77770000489102
Receipt Date:	18-OCT-2019
Filing Date:	27-SEP-2018
Time Stamp:	04:46:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$240
RAM confirmation Number	E20190H547067708
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	P38213US2_IDS.pdf	199784 456e003d7d68a8962fea5afbced01b95fac9198f	no	3
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Foreign Reference	WO_03067202_A2.pdf	4449979 6f659ea6004b6b95b6c54e199f3d4534e2666422	no	26
Warnings:					
Information:					
3	Foreign Reference	WO_2018148356_A1.pdf	5128164 2d89d31fe568cfb47df3014eb97e8321cc091465	no	81
Warnings:					
Information:					
4	Non Patent Literature	Casella_2015_3.pdf	387292 4af063f34df657ff652d85ab369775affad20400	no	3
Warnings:					
Information:					
5	Non Patent Literature	16143997_FOA_09_30_2019.pdf	598393 e4fee38fcb25c323265c3b1fa99ed14fa63143c5	no	16
Warnings:					
Information:					
6	Non Patent Literature	16144030_FOA_10_01_2019.pdf	622966 b54ca1d23325f6bad0c280cc2957e58c267adf83	no	13
Warnings:					

Information:					
7	Non Patent Literature	Fitbit_2018_8.pdf	1660819 d7c2110ee77e47359ca84483a0513e1ec0f92fea	no	8
Warnings:					
Information:					
8	Non Patent Literature	MegaDepot_2018_3.pdf	418958 c79a75753491ac3342c95c25129d4877223d4f57	no	3
Warnings:					
Information:					
9	Non Patent Literature	2019100495_AUOA_09_17_2019.pdf	1455292 4f219d1a9d5d22f68c600c357f1656359cf3b876	no	7
Warnings:					
Information:					
10	Non Patent Literature	StudioSixDigital_2017_3.pdf	384700 62ef8a0a67a0012bcf83818a74a79e24796b1363	no	3
Warnings:					
Information:					
11	Fee Worksheet (SB06)	fee-info.pdf	30936 d30113186176a88696b05a8432ae4fc2633cdec9	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	15337283	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/143,959
	Filing Date	2018-09-27
	First Named Inventor	Christopher D. SOLI
	Art Unit	3792
	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

U.S. PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

U.S. PATENT APPLICATION PUBLICATIONS						
Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	20190274562	A1	2019-09-12	Soli et al.	
	2.	20190274564	A1	2019-09-12	Soli et al.	
	3.	20190274565	A1	2019-09-12	Soli et al.	

FOREIGN PATENT DOCUMENTS								
Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T[5]

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1.	Certificate of Examination received for Australian Patent Application No. 2019100222, mailed on August 29, 2019, 2 pages.	
	2.	International Search Report and Written Opinion received for PCT Patent Application No. PCT/US2019/019694, mailed on September 02, 2019, 17 pages.	
	3.	Non-Final Office Action received for U.S. Patent Application No. 16/144,849, mailed on September 17, 2019, 9 pages.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/143,959
	Filing Date	2018-09-27
	First Named Inventor	Christopher D. SOLI
	Art Unit	3792
	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

EXAMINER SIGNATURE			
Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.
[4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/143,959
	Filing Date	2018-09-27
	First Named Inventor	Christopher D. SOLI
	Art Unit	3792
	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (2).

☐ See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Randy Omid/	Date (YYYY-MM-DD)	2019-09-23
Name/Print	Randy Omid	Registration Number	67,439

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:
Ho, Brian
DENTONS US LLP
4655 Executive Drive, suite 700
San Diego CA 92121
ETATS-UNIS D'AMERIQUE

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference P38213WO1	Date of mailing *(day/month/year)* 2 September 2019 (02-09-2019) **FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No. PCT/US2019/019694	International filing date *(day/month/year)* 26 February 2019 (26-02-2019)
Applicant APPLE INC.	

1. [X] The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

   Filing of amendments and statement under Article 19:
   The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

   When? The time limit for filing such amendments is normally two months from the date of transmittal of the International Search Report.

   How? Directly to the International Bureau of WIPO, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Fascimile No.: (41-22) 338.82.70

   For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 - 9.011.

2. [ ] The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. [ ] **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

   [ ] the protest together with the decision thereon has been transmitted to the International Bureau together with any applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

   [ ] no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

   The applicant may **submit comments on an informal basis on the written opinion of the International Searching Authority** to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

   Shortly after the expiration of **18 months from the priority date, the international application will be published** by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

   Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

   Within **22 months from the priority date, the applicant may request that a supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the International Searching Authority European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040 Fax: (+31-70) 340-3016	Authorized officer DOMBKOWSKI, Mahjouba Tel: +49 (0)89 2399-5762

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
IPR2024-00095, U.S. Patent No. 10,568,533
275 of 1413

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
P38213WO1		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/US2019/019694	26 February 2019 (26-02-2019)	12 March 2018 (12-03-2018)
Applicant		
APPLE INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**
   a. With regard to the **language,** the international search was carried out on the basis of:
      ☒ the international application in the language in which it was filed
      ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))
   b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).
   c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☒ **Unity of invention is lacking** (see Box No III)

4. With regard to the **title,**
   ☒ the text is approved as submitted by the applicant
   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**
   ☒ the text is approved as submitted by the applicant
   ☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings,**
   a. the figure of the **drawings** to be published with the abstract is Figure No. 1a
      ☐ as suggested by the applicant
      ☒ as selected by this Authority, because the applicant failed to suggest a figure
      ☐ as selected by this Authority, because this figure better characterizes the invention
   b. ☐ none of the figures is to be published with the abstract

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2019/019694

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-28

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2019/019694

A. CLASSIFICATION OF SUBJECT MATTER
INV. G16H50/30 G16H70/20
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G16H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2016/132046 A1 (BEOUGHTER KEN J [US] ET AL) 12 May 2016 (2016-05-12) paragraphs [0106] - [0108], [0343]	1-28
Y	WO 2017/062621 A1 (BERARDINELLI RAYMOND A [US]) 13 April 2017 (2017-04-13) paragraphs [0012], [0013], [0208]	1-28
Y	US 2016/302666 A1 (SHAYA FAWZI [US]) 20 October 2016 (2016-10-20) paragraphs [0070], [0121], [0066]; claim 5	1-28
A	US 2015/297134 A1 (ALBERT DAVID E [US] ET AL) 22 October 2015 (2015-10-22) the whole document	1-28

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
25 June 2019	02/09/2019

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Laub, Christoph

1

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2019/019694

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2016132046 A1	12-05-2016	NONE	
WO 2017062621 A1	13-04-2017	AU 2016336463 A1	24-05-2018
		CA 3001350 A1	13-04-2017
		GB 2558844 A	18-07-2018
		US 9939784 B1	10-04-2018
		US 2018224804 A1	09-08-2018
		US 2019146550 A1	16-05-2019
		WO 2017062621 A1	13-04-2017
US 2016302666 A1	20-10-2016	NONE	
US 2015297134 A1	22-10-2015	CN 106456008 A	22-02-2017
		EP 3133984 A1	01-03-2017
		JP 2017513626 A	01-06-2017
		US 2015297134 A1	22-10-2015
		WO 2015164404 A1	29-10-2015

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-28

   Partitioned display of medical tutorial instructions.

   ---

2. claims: 29-52

   Criteria dependent biometric sensor information detection.

   ---

3. claims: 53-68

   Criteria dependent data input device operation activation.

   ---

4. claims: 69-89

   Criteria dependent input of user specified symptoms.

   ---

5. claims: 90-107

   Criteria dependent alert generation based in biometric sensor data.

Information on Search Strategy - Pilot phase (see OJ 2015, A86)
The type of information contained in this sheet may change during the pilot for improving the usefulness of this new service.

Application Number
PCT/US2019/019694

TITLE:

APPLICANT: APPLE INC.

IPC CLASSIFICATION: G16H50/30, G16H70/20

EXAMINER: Laub, Christoph

CONSULTED DATABASES: EPODOC, WPI

CLASSIFICATION SYMBOLS DEFINING EXTENT OF THE SEARCH:

IPC:

CPC: G16H50/30, G16H70/20

FI/F-TERMS:

KEYWORDS OR OTHER ELEMENTS FEATURING THE INVENTION:

EPO FORM P04A42

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2019/019694	26.02.2019	12.03.2018

International Patent Classification (IPC) or both national classification and IPC
INV. G16H50/30 G16H70/20

Applicant
APPLE INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:	Date of completion of this opinion	Authorized Officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465	see form PCT/ISA/210	Laub, Christoph Telephone No. +49 89 2399 - 0

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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:

   a. ☐ forming part of the international application as filed:

      ☐ in the form of an Annex C/ST.25 text file.

      ☐ on paper or in the form of an image file.

   b. ☐ furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.

   c. ☐ furnished subsequent to the international filing date for the purposes of international search only:

      ☐ in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).

      ☐ on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

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IPR2024-00095, U.S. Patent No. 10,568,533

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of

☐ the entire international application

☒ claims Nos. 29-107

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international search *(specify)*:

☐ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. are so unclear that no meaningful opinion could be formed *(specify)*:

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed *(specify)*:

☒ no international search report has been established for the whole application or for said claims Nos. 29-107

☐ a meaningful opinion could not be formed without the sequence listing; the applicant did not, within the prescribed time limit:

- ☐ furnish a sequence listing in the form of an Annex C/ST.25 text file, and such listing was not available to the International Searching Authority in the form and manner acceptable to it; or the sequence listing furnished did not comply with the standard provided for in Annex C of the Administrative Instructions.
- ☐ furnish a sequence listing on paper or in the form of an image file complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Searching Authority in the form and manner acceptable to it; or the sequence listing furnished did not comply with the standard provided for in Annex C of the Administrative Instructions.
- ☐ pay the required late furnishing fee for the furnishing of a sequence listing in response to an invitation under Rule 13*ter*.1(a) or (b).

☐ See Supplemental Box for further details

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IPR2024-00095, U.S. Patent No. 10,568,533

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has, within the applicable time limit:

   ☐ paid additional fees

   ☐ paid additional fees under protest and, where applicable, the protest fee

   ☐ paid additional fees under protest but the applicable protest fee was not paid

   ☒ not paid additional fees

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is

   ☐ complied with

   ☒ not complied with for the following reasons:

   see separate sheet

4. Consequently, this report has been established in respect of the following parts of the international application:

   ☐ all parts.

   ☒ the parts relating to claims Nos. 1-28

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-28
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-28
Industrial applicability (IA)	Yes:	Claims	1-28
	No:	Claims	

2. Citations and explanations

see separate sheet

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IPR2024-00095, U.S. Patent No. 10,568,533

Item IV

1. This Authority considers that the application does not meet the requirements of unity of invention and that there are four inventions covered by the claims indicated as follows:

1.1 Claims 1-28 refer to a method, devices and storage medium for partitioned display of medical tutorial instructions.

1.2 Claims 29-52 relate to a method, devices and storage medium for criteria dependent biometric sensor information detection.

1.3 Claims 53-68 relate to a method, devices and storage medium for criteria dependent data input device operation activation.

1.4 Claims 69-89 relate to a method, devices and storage medium for criteria dependent input of user specified symptoms.

1.5 Claims 90-107 relate to a method, devices and storage medium for criteria alert generation based in biometric sensor data.

2. The reasons for which the inventions are not so linked as to form a single general inventive concept, as required by Rule 13.1 PCT, are as follows:

The closest prior art has been identified as D2. D2 discloses a method and system relating to a paired smartwatch and smartphone for medical data processing based on tutorial instructions provided to the smartwatch user, taking away inventive activity of claims 1-28 of the first invention.

2.1 The common technical concept of the four inventions identified above is related to the coupling of a first electronic device and a second electronic device and to the display of information .

3. The solved problem by the first invention is that tutorial instructions can be interactively followed and updated according to the progress of the device user.

4. None of the further inventions 1.2 - 1.5 discloses corresponding features which solve the problem stated above.

4.1 Instead, the technical effect and problem of the second invention are related to the control of detection processes based on detection criteria.

4.2 Instead, the technical effect and problem of the third invention are related to activation detection of input devices.

4.3 Instead, the technical effect and problem of the fourth invention are related to input sequence detection and evaluation.

4.4 Instead, the technical effect and problem of the fifth invention are related to affordance alert generation.

5. Obviously there exists a lack of corresponding technical effect. Consequently, neither the objective problem underlying the subjects of the claimed inventions, nor their solutions defined by the special technical features allow for a relationship to be established between the said inventions, which involves a single general inventive concept.

6 . In conclusion, the groups of claims are not linked by common or corresponding special technical features and define different inventions not linked by a single general inventive concept.

The application, hence does not meet the requirements of unity of invention as defined in Rules 13.1 and 13.2 PCT.

No search and no opinion will be provided with respect to the second - fifth inventions.

Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1 **Background**

The present application relates to user interfaces for health monitoring.

(cf. application, p. 1)

2 **Rule 39.1 PCT and the EPO procedure concerning inventive step assessment of mixed-type inventions**

2.1 The claims comprise technical and non-technical features.

The attention of the applicant is drawn to the fact that only those features which contribute to the technical character of the invention are taken into account for the assessment of inventive step.

2.2 Features which, when taken in isolation, are non-technical, may contribute to the technical character of an invention,

- if in the context of the invention, they serve an adequately defined technical purpose or
- if further technical considerations were involved, e.g. in the programming.

Articles 33(2) and 33(3) PCT

D1 US 2016/132046 A1 (BEOUGHTER KEN J [US] ET AL) 12 May 2016 (2016-05-12)

D2 WO 2017/062621 A1 (BERARDINELLI RAYMOND A [US]) 13 April 2017 (2017-04-13)

D3 US 2016/302666 A1 (SHAYA FAWZI [US]) 20 October 2016 (2016-10-20)

D2 is considered the closest prior art.

3 **Independent claim 1**

Document D2 equally discloses these features which are indicated under the respective paragraph numbers below (features which fall under the provisions under item 2 and do not contribute to the technical character of the claim are underlined, features which are not disclosed in D1 are ~~struck out~~):

3.1 A method, comprising: at a first electronic device with a display and one or more input devices, wherein the first electronic device is paired with a second electronic device:

D2: cf. § 13

It is understood from the description that the first electronic device is something like a smartphone and the second electronic device is something like a smartwatch.

3.2 displaying, on ~~the~~ display, a first portion of a tutorial for using a function of the second electronic device;

D2: §12. The tutorial is displayed on the smartwatch.

It is understood that in claim 1 the display of the first device is used for displaying the instructions.

3.3 detecting, via the one or more input devices, a request to proceed with the tutorial;

This is an implicit necessity of the function of D2.

Cf. further more: D3, § 70, where an interactive tutorial is disclosed, disclosing all features 3.3.1, 3.3, 3.4.

3.3.1 in response to detecting the request to proceed with the tutorial, displaying, on the display, instructions to perform an operation on the second electronic device that involves the function of the second electronic device;

This administrative, non technical step is an implicit necessity of the function of D2.

3.4 ~~receiving, from the second electronic device, an indication that the instructions have been carried out; and~~

3.4.1 ~~in response to receiving the indication that the instructions have been carried out, displaying, on the display, a second portion of the tutorial that is different from the first portion.~~

4 D1 is equally suitable to be used as closest prior art (cf. references in the search report).

5 **Difference and inventive step assessment**

5.1 Claim 1 differs from D2 in the fact that

5.1.1 the tutorial is displayed on the first device, (i.e. the smartphone)

5.1.2 the content of features 3.4, 3.4.1

5.2 The effect achieved by difference 5.1.1 is that cognitive data is processed to device 1. The problem to be solved is to provide an alternative display area for the cognitive information.

The skilled person being faced with the above problem and starting from D2 would, without inventive activity consider to transfer the tutorial instructions from device 2 to device 1.

5.3 The effect achieved by difference 5.1.2 is that the change of displayed cognitive content is triggered by activity indications from the second device.

The problem to be solved is to provide an interactive tutorial which keeps track of the users activities according to the tutorial.

5.4 D3, §70, equally discloses an interactive tutorial which processes according to the progress of the user.

The skilled person starting from D2 and being faced with the above problem would, without inventive activity, re-program the system according to D2 based on the teaching of D3.

Consequently, claim 1 is not inventive and therefore does not fulfill the requirements of Article 33(3) PCT.

6 Further independent Claims

6.1 Claims 23-28

The same objections apply mutatis mutandis to the independent claims claims 23-28.

7 Dependent Claims

7.1 Claims 2, 4, 6-22 relate to the display of cognitive information and to the administration of abstract tasks. There exists no technical functional chain between the information provided and the functionality of the system. Consequently the requirements according to 2 are not met.

7.2 The subject matter of claims 3 and 5 is disclosed in D2, §208.

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8 **Number of independent claims**

8.1 Should the applicant consider a European Patent, he is advised that the number of independent claims is limited to one independent claim in each category. Exceptions from this rule can only be admitted under specific circumstances. Independent claims 25-28 do not fall under any exceptions, and one of them would therefore have to be deleted or re-drafted as dependent claim in the European phase.

The applicant is, however, advised that the substantive patentability objections above are so severe that any improvement of formal deficiencies will not have any impact on the negative opinion expressed in the paragraphs above.

9 The examining division respectfully asks the representative to make, in his reply, consequent use of the claim feature numbering as used in this communication.

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Electronic Patent Application Fee Transmittal

Application Number:	16143959
Filing Date:	27-Sep-2018
Title of Invention:	USER INTERFACES FOR HEALTH MONITORING
First Named Inventor/Applicant Name:	Christopher D. SOLI
Filer:	Peter Jung-Hyon Yim/Ganesh Tripathi
Attorney Docket Number:	P38213US2/77770000489102

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	1806	1	240	240
		Total in USD ($)		**240**

Electronic Acknowledgement Receipt

EFS ID:	37236551
Application Number:	16143959
International Application Number:	
Confirmation Number:	6224
Title of Invention:	USER INTERFACES FOR HEALTH MONITORING
First Named Inventor/Applicant Name:	Christopher D. SOLI
Customer Number:	150004
Filer:	Peter Jung-Hyon Yim/Ganesh Tripathi
Filer Authorized By:	Peter Jung-Hyon Yim
Attorney Docket Number:	P38213US2/77770000489102
Receipt Date:	23-SEP-2019
Filing Date:	27-SEP-2018
Time Stamp:	09:03:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$240
RAM confirmation Number	E20199M004127786
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

AliveCor Exhibit 1002
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	P38213US2_IDS.pdf	197668 f01e2f3bc52e8a0195db3142c2d923eddca5d911	no	3
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Non Patent Literature	2019100222_AUCOE_08_29_2019.pdf	749915 75a5c5437bd6376fe7b42e022e628a41d810cb70	no	2
Warnings:					
Information:					
3	Non Patent Literature	PCTUS2019019694_ISRWO_09_02_2019.pdf	3699374 11c2a6a187a1969f53d8c89ee36d11eec78a604b	no	17
Warnings:					
Information:					
4	Non Patent Literature	16144849_NFOA_09_17_2019.pdf	328059 a80d8f669f68a77565d399ae7a1edcba936f870b	no	9
Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	30618 627c38109b32293c12b12adfc502cc7a02a6d39e	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	5005634		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/143,959	09/27/2018	Christopher D. SOLI	P38213US2/77770000489102

CONFIRMATION NO. 6224

150004
DENTONS US LLP - Apple
4655 Executive Dr
Suite 700
San Diego, CA 92121

PUBLICATION NOTICE

OC000000111072010

Title:USER INTERFACES FOR HEALTH MONITORING

Publication No.US-2019-0274563-A1
Publication Date:09/12/2019

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16/143,959
	Filing Date	2018-09-27
	First Named Inventor	Christopher D. SOLI
	Art Unit	3792
	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

U.S. PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

U.S. PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	20060235319	A1	2006-10-19	Belohlavek et al.	
	2.	20120065480	A1	2012-03-15	Badilini et al.	
	3.	20120245447	A1	2012-09-27	Karan et al.	
	4.	20130158416	A1	2013-06-20	Hatlestad et al.	
	5.	20130317380	A1	2013-11-28	Liley et al.	
	6.	20140038781	A1	2014-02-06	Foley et al.	
	7.	20160346607	A1	2016-12-01	Rapfogel, Jonathan	
	8.	20170354845	A1	2017-12-14	Williams et al.	
	9.	20180189077	A1	2018-07-05	Gupta et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1.	2013/109916	WO	A1	2013-07-25	Nike International Ltd.		

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1.	Final Office Action received for U.S. Patent Application No. 16/143,909, mailed on August 28, 2019, 20 pages.	
	2.	International Search Report and Written Opinion received for PCT Patent Application No. PCT/US2019/024570, mailed on August 08, 2019, 18 pages.	

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	Art Unit	3792
	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

EXAMINER SIGNATURE			
Examiner Signature		Date Considered	

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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.
[4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Examiner Name	M. J. Lau
	Attorney Docket Number	P38213US2/77770000489102

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (2).

☐ See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Randy Omid/	Date (YYYY-MM-DD)	2019-09-12
Name/Print	Randy Omid	Registration Number	67,439

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

[Continued on next page]

(54) Title: MULTI-ACTIVITY PLATFORM AND INTERFACE

(57) Abstract: A multi-activity system may be configured to receive, upload, synchronize and process data for a variety of different activity types and/or recorded using multiple types of activity monitoring devices. In one example, an application interface may be defined with a multiple functions that are each useable by various types of devices and for processing multiple types of data. Additionally or alternatively, data for different activity types and/or recorded using different types of monitoring devices may be processed differently. Synchronization of data may further be handled on a device-by-device basis, device-type basis and/or activity-type basis using various tracking parameters.

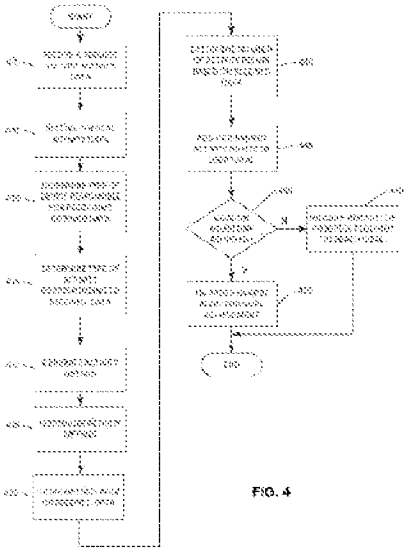


FIG. 4

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(84) **Designated States** *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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— *with international search report (Art. 21(3))*

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MULTI-ACTIVITY PLATFORM AND INTERFACE

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of priority from U.S. Provisional Application Ser. No. 61/588,610, entitled "MULTI-ACTIVITY PLATFORM AND INTERFACE," and filed on January 19, 2012. The content of the aforementioned application is hereby incorporated by reference in its entirety.

BACKGROUND

[0002] Exercise and fitness have become increasingly popular and the benefits from such activities are well known. Various types of technology have been incorporated into fitness and other athletic activities. For example, a wide variety of portable electronic devices are available for use in fitness activities, such as MP3 or other audio players, radios, portable televisions, DVD players, or other video playing devices, watches, GPS systems, pedometers, mobile telephones, pagers, beepers, etc. Many fitness enthusiasts or athletes use one or more of these devices when exercising or training to keep them entertained, record and provide performance data or to keep them in contact with others, etc.

BRIEF SUMMARY

[0003] The following presents a general summary of aspects of the disclosure in order to provide a basic understanding of at least some of its aspects. This summary is not an extensive overview. It is not intended to identify key or critical elements or to delineate the scope. The following summary merely presents some concepts of the invention in a general form as a prelude to the more detailed description provided below.

[0004] Aspects described herein provide activity data recording, on-line communities and interfaces between activity monitoring and tracking devices and systems supporting multiple different types of activities. Additionally or alternatively, the various aspects described herein provide for distinguishing activity data and information based on a type of device through which the activity data was recorded. Still further, activity data from multiple types of activity types, devices and device types and activity sessions may be aggregated toward a single goal. In this manner, goals providing motivation to perform activities (including fitness programs, sports, and other types of physical activity and athletic activity) might no longer limit users to a single activity or device for a particular goal.

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[0005] Other aspects and features are described throughout the disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] The present disclosure is illustrated by way of example and not limited in the accompanying figures in which like reference numerals indicate similar elements and in which:

[0007] FIG. 1 illustrates an example system in which various features discussed herein may be included and/or implemented.

[0008] FIG. 2 illustrates an example device in which various features discussed herein may be included and/or implemented.

[0009] FIG. 3 illustrates another example device in which various features discussed herein may be included and/or implemented.

[0010] FIG. 4 is a flowchart illustrating an example method for processing multiple types of activity data from a variety of device types according to one or more aspects described herein.

[0011] FIGS. 5A-5E illustrate example interfaces a device setup and configuration according to one or more aspects described herein.

[0012] FIGS. 6A and 6B illustrate example interfaces conveying a battery charging status according to one or more aspects described herein.

[0013] FIG. 7 illustrates an example configuration interface through which a user may define or redefine his or her goal according to one or more aspects described herein.

[0014] FIGS. 8A and 8B illustrate example welcome interfaces according to one or more aspects described herein.

[0015] FIGS. 9A and 9B illustrate example interfaces that may be generated and displayed depending on the type of activity data that is to be viewed according to one or more aspects described herein.

[0016] FIGS. 10A-10G illustrate example activity tracking and monitoring interfaces that may be used to track multiple types of activities and activities recorded using multiple types of monitoring devices according to one or more aspects described herein.

[0017] FIGS. 11A and 11B illustrate example interfaces providing a graph of activity performed for a period of time such as a goal time period according to one or more aspects described herein.

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[0018] FIG. 11C illustrate an example interface identifying a best day or time period for a user according to one or more aspects described herein.

[0019] FIG. 12 illustrates an interface in which a user's activity over a time period may be replayed according to one or more aspects described herein.

[0020] FIGS. 13A, 13B and 13C illustrate example summary interfaces displaying a user's activity levels over a week, month and year, respectively, according to one or more aspects described herein.

[0021] FIGS. 14A-14D illustrate example user profile pages according to one or more aspects described herein.

[0022] FIG. 15 illustrates an example device setting interface according to one or more aspects described herein.

[0023] FIGS. 16A and 16B illustrate example notifications that may be displayed to a user through an on-line activity tracking site according to one or more aspects described herein.

[0024] FIGS. 17A-17D illustrate example interface for sharing activity data according to one or more aspects described herein.

DETAILED DESCRIPTION

[0025] In the following description of various example embodiments, reference is made to the accompanying drawings, which form a part hereof, and in which are shown by way of illustration various example devices, systems, and environments in which aspects may be practiced. It is to be understood that other specific arrangements of parts, example devices, systems, and environments may be utilized and structural and functional modifications may be made without departing from the scope of the present disclosure.

Overview

[0026] FIG. 1 illustrates a general network and system environment in which one or more aspects described herein may be used and operate. For example, environment 100 may include multiple devices connected via various types of networks, connections and protocols including the Internet, short-range and long-range wireless communications, wired communications, cellular communications, BLUETOOTH (e.g., Low-Energy), ZIGBEE, RFID, Wi-Fi, WLAN, USB, FireWire and the like and/or combinations thereof. For example, activity monitoring devices 103a and 103b may be connected to computing devices

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105a and 105b, respectively, through short-range connections including wired and wireless connections. Activity monitoring device 103c, on the other hand, may be connected to a remote activity monitoring and tracking system 107 via long-range wireless or wired communications including Wi-Fi, cellular communications, TCP/IP, Ethernet and the like and/or combinations thereof.

[0027] Activity monitoring devices 103a, 103b and 103c may include any type of activity monitoring system including smartphones, dedicated activity monitoring devices, sensors and the like and/or combinations thereof. Examples of activity monitoring devices are described in: U.S. Application No. 13/287,047, entitled "Wearable Device Having Athletic Functionality," filed November 1, 2011; U.S. Patent Application No. 12/767,288 entitled "Athletic Watch," filed April 26, 2010; U.S. Patent Application No. 12/767,447 entitled "GPS Features And Functionality In An Athletic Watch System," filed April 26, 2010; U.S. Patent Application No. 12/767,425 entitled "Athletic Watch," filed April 26, 2010; U.S. Application No. 12/767,308, entitled "Athletic Watch," filed April 26, 2010; and U.S. Application No. 13/343,587, entitled "Athletic Watch," filed January 4, 2012, the contents of which are hereby incorporated by reference in their entirety.

[0028] Activity monitoring devices 103a, 103b, 103c may include different sensors (e.g., heart rate monitor, accelerometer, global positioning system, cellular triangulation system, shock sensors, temperature gauges, gyroscopes, light sensors, etc.), may use different communication or data recording protocols, have different calibrations and/or be configured to detect different types of activity and movement. For example, device 103a may be configured to detect a number of steps and a corresponding pace based thereon while device 103b may be configured to detect heart rate and hip movement (e.g., for basketball or other types of sports). Accordingly, the data recorded by devices 103a and 103b might not be immediately compatible or comparable (e.g., use of differing data recordation protocols). A user may, for instance, have to view metrics and the recorded data using different applications, services or systems so that the information is appropriately processed and visualized or otherwise conveyed. Even between devices having similar components (e.g., devices 103a and 103c), the devices may have different sensitivities or calibrations and thus, the resulting data may still offer inaccurate comparisons of performance.

[0029] To facilitate comparisons and to streamline tracking of overall physical activity, activity data may be processed using a multi-activity system and platform such as system 107. System 107 may host an activity monitoring and tracking site and community through

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which users may track their own activity progress as well as connect with other users to share and/or compare activity levels, compete, engage in joint activities, communicate and the like. As described herein, communication of activity data between monitoring devices 103a and 103b may be facilitated through computing devices 105a and 105b, respectively. Activity monitoring device 103a may further communicate data with device 105c. However, use of computing devices 105a, 105b, and 105c might not be necessary, if, for instance, devices 103a and 103b include communication means (e.g., Internet access or wide-area network access) for interfacing with system 107. In some examples, devices 105a, 105b and 105c may also provide intermediate processing of activity data and include one or more of a multi-activity system and platform's functions and/or capabilities.

[0030] System 107 may be configured to provide a single source through which a user may view activity data for a variety of activities and types of activities performed. Rather than having to view basketball activity data, for example, through a first site or system and running data through another site or system, the user may view the information in aggregate through a single platform or system. Additionally, data recorded using different monitoring devices or types of activity monitoring devices such as devices 103a, 103b and 103c may also be aggregated and viewed together. System 107 may also provide visualizations and data processing that allows more granular control of the recorded data and activities. For example, system 107 may provide the user with the ability to view sets of activity data based on the monitoring device used, type of activity monitoring device, type of activity performed, time period, and/or activity session. Moreover, the aggregation of physical activity data by system 107 may allow a user to measure, view and evaluate his or her overall physical activity levels. For example, various physical activity data (e.g., metrics) may be used to determine a virtual activity metric, such as activity points, to provide a basis of comparison between different activities and activity sessions. Additionally, a user may define goals that may be achieved through performing multiple types of activities, even if the multiple types of activities are measured using different metrics or provide different types of sensor data, and/or if the user uses different monitoring devices or types of monitoring devices such as devices 103a, 103b and 103c.

[0031] Computing devices 105a, 105b and 105c may be configured to provide data processing similar to that of system 107, without requiring data to be sent to system 107. For example, computing device 105a may receive data from multiple monitoring devices 103a, 103b and/or 103c and provide comparisons and data tracking similar to system 107.

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Alternatively or additionally, computing devices 105a, 105b and 105c may also be used in some arrangements to provide intermediate storage of data and to facilitate data communication with system 107. For example, if devices 103a and 103b include relatively small memory capacities, computing devices 105a, 105b and 105c may be used to store recorded data from devices 103a and 103b, respectively so that devices 103a and 103b may delete previously recorded activity data to make space to store additional new data. Computing devices 105a, 105b and 105c may correspond to other activity monitoring devices, telecommunication devices such as cellular phones, satellite phones, Internet telephony devices, smart phones and the like, portable computing devices including music players, video players, laptop computers and the like and/or desktop computing systems such as personal computers (PCs).

[0032] In one or more arrangements, one or more of devices 105a, 105b and 105c may be configured differently than the other devices. In one example, device 105c may be configured for local synchronization and storage of activity data while one or more of devices 105a and 105b may be configured for pass-through synchronization. Accordingly, activity data may be synchronized between activity monitoring device 103a and device 105c such that activity data is stored on device 105c. The activity data may then be synchronized to multi-activity system 107 at some point in the future. When in pass-through synchronization mode, device 105a may facilitate synchronization between device 103a and multi-activity system 107 without intermediate storage. That is, device 105a might not support synchronization between just device 105a and activity monitoring device 103a. The various synchronization configurations of devices 105a, 105b and 105c may depend on the type of synchronization applications installed and/or executing thereon.

[0033] FIG. 2 illustrates an example computing system that may be included in one or more of the devices described in FIG. 1. For example, computing system 201 may be adapted to operate as any one of devices 103a, 103b, 103c, 105a, 105b and 107. As seen in this figure, the computer 201 has a computing unit 203. The computing unit 203 may include a processing unit 205 and system memory 207. The processing unit 205 may be any type of processing device for executing software instructions, but may conventionally be a microprocessor device. The system memory 207 may include both a read-only memory (ROM) 209 and a random access memory (RAM) 211. As will be appreciated by those of ordinary skill in the art, both the read-only memory (ROM) 209 and the random access

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memory (RAM) 211 may store software instructions for execution by the processing unit 205.

[0034] The processing unit 205 and the system memory 207 are connected, either directly or indirectly, through a bus 213 or alternate communication structure to one or more peripheral devices. For example, the processing unit 205 or the system memory 207 may be directly or indirectly connected to additional memory storage, such as the hard disk drive 217 and the removable optical disk drive 219. Computer 201 may further use or interface with other memory storage mediums such as solid state drives, removable magnetic disk drives and flash memory cards. The processing unit 205 and the system memory 207 also may be directly or indirectly connected to one or more input devices 221 and one or more output devices 223. The input devices 221 may include, for example, a keyboard, touch screen, a remote control pad, a pointing device (such as a mouse, touchpad, stylus, trackball, or joystick), a scanner, a camera or a microphone. The output devices 223 may include, for example, a monitor display, television, printer, stereo, or speakers.

[0035] Still further, the computing unit 203 may be directly or indirectly connected to one or more network interfaces 215 for communicating with a network. This type of network interface 215, also sometimes referred to as a network adapter or network interface card (NIC), translates data and control signals from the computing unit 203 into network messages according to one or more communication protocols, such as the Transmission Control Protocol (TCP), the Internet Protocol (IP), and the User Datagram Protocol (UDP). Network adapters may be wireless or wired or combinations thereof. These protocols are well known in the art, and thus will not be discussed here in more detail. An interface 215 may employ any suitable connection agent for connecting to a network, including, for example, a wireless transceiver, a power line adapter, a modem, or an Ethernet connection. Connection agents may similarly be wireless or wired or a combination thereof. Accordingly, using interface 215, computer 201 may be able to access wide area networks such as the Internet in addition to local area networks. In one or more arrangements, a user may browse websites or other network devices through a local or wide area network using interface 215. Data such as physical activity may be transmitted to or received from local or remote network sources (e.g., devices 103a, 103b, 103c, 105a and 105b of FIG. 1).

[0036] Other peripheral devices may be included with or otherwise connected to a computer 201 of the type illustrated in Figure 1, as is well known in the art. In some cases, a peripheral device may be permanently or semi-permanently connected to the computing unit

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203. For example, with many computers, the computing unit 203, the hard disk drive 217, the removable optical disk drive 219 and a display are semi-permanently encased in a single housing. Still other peripheral devices may be removably connected to the computer 201, however. The computer 201 may include, for example, one or more communication ports through which a peripheral device can be connected to the computing unit 203 (either directly or indirectly through the bus 213). These communication ports may thus include a parallel bus port or a serial bus port, such as a serial bus port using the Universal Serial Bus (USB) standard or the IEEE 1394 High Speed Serial Bus standard (e.g., a Firewire port). Alternately or additionally, the computer 201 may include a wireless data "port," such as a Bluetooth interface, a Wi-Fi interface, an infrared data port, or the like.

[0037] It should be appreciated that a computing device employed according to various examples of the invention may include more components than the computer 201 illustrated in Figure 2, fewer components than the computer 201, or a different combination of components than the computer 201. Some implementations, for example, may employ one or more computing devices that are intended to have a very specific functionality, such as a digital music player, an activity monitoring device or server computer. These computing devices may thus omit unnecessary peripherals, such as the network interface 215, removable optical disk drive 219, printers, scanners, external hard drives, etc. Some implementations may alternately or additionally employ computing devices that are intended to be capable of a wide variety of functions, such as a desktop or laptop personal computer. These computing devices may have any combination of peripheral devices or additional components as desired.

[0038] FIG. 3 illustrates another example computing device which may be applied to an activity monitoring device such as devices 103a, 103b and 103c of FIG. 1. For example, activity detection and tracking device 300 may include a variety of components including a main controller or host processor 301 configured to execute instructions and control other components of the device 300 in accordance with the instructions. The device 300 may further include memory for storage of data and instructions including volatile and non-volatile memory such as random access memory (RAM) 303, read-only memory (ROM) 305 and storage 307. Additionally, the device 300 may include a charging component 309 for charging one or more batteries (not shown) powering the device 300. The device 300 may further include various input and output adapters and other components including an ambient light sensor 311, a display adapter 313, an accelerometer 315 and input adapter 317. Ambient light sensor 311 may be used to determine a level of brightness for one or more

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displays for viewability. Light sensor 311 may also be used to determine a general time of day. Input adapter 317 may be configured to receive and process various types of input including button presses, touch input, scroll wheel input and the like, depending on the types of input devices included in the device 300. Accelerometer 315 may be configured for detecting movement of the wearable device and the user when the device is worn. In some examples, accelerometer 315 may be a one-axis, three-axis or six-axis accelerometer. Other sensors including heart-rate sensors, temperature sensors, humidity sensors, compass, gyroscopic sensor and the like may also be included in the device 300.

[0039] Communication by the device 300 may be performed through wired and wireless connection means. In one example, device 300 may include a radio component 319 configured to communicate with other devices wirelessly through radio frequency transmissions. The radio component 319 may correspond to a BLUETOOTH transceiver, an RFID device, a Wi-LAN transceiver, cellular transceiver and the like and/or combinations thereof, and/or may include a dedicated processor. Display adapter 313 may be configured to control one or more displays of the device in conveying various activity information, interaction information, alerts, notifications and the like. In one example, display adapter 313 may be configured to control a first display independently from controlling a second display of the device 300. The wearable device may further include location determination components such as global positioning system (GPS) component 321. Location determination may also be performed using other devices including a cellular transceiver (e.g., based on cellular triangulation). Components described herein may be combined into a single device or may be distributed over multiple components. Moreover, additional or alternative components may be used to provide additional or alternative functionalities.

[0040] A multi-activity platform and system such as system 107 may be configured to receive physical activity data for multiple different types of activities and multiple activity sessions from a variety of different monitoring/detection devices and types of monitoring/detection devices. The various functionalities provided by the system may include: activity data tracking and processing, facilitating activity challenges, interfacing with legacy activity tracking systems, generating community information including activity statistics for an entire community, device configuration, setup and synchronization, tracking and processing goals, user registration, interfacing with other communities or social networks to obtain or provide relevant information, user profile and site management and the like.

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[0041] While the multi-activity platform and system 107 is described as being separate from devices 103a, 103b, 103c, 105a, 105b and 105c, all or a portion of the multi-activity platform may be implemented in devices 103a, 103b, 103c, 105a,105b and 105c. For example, the multi-activity platform may include an application protocol interface configured to facilitate data communication and interactivity between different activity monitoring devices, tracking services or systems, activity monitoring applications and the like. As such, regardless of the configuration or type of the activity monitoring device (e.g., types of sensors included or type of activity to be tracked), tracking service or system or applications executed thereon, data may be communicated and functions may be invoked using a shared framework.

[0042] FIG. 4 illustrates an example process through which a multi-activity platform and system may process activity data from multiple devices and for multiple activities. In step 400, the system may receive a request to post data to the system. The request may be received from an activity detection and monitoring device such as devices 103a, 103b and 103c (FIG. 1) or from an intermediary device such as computing devices 105a and 105b (FIG. 1). In step 405, the system may receive the physical activity data from the requesting device. The physical activity data may be transmitted according to various protocols and, in at least one example, may be transferred using an API provided by the system, as discussed in further detail herein. In step 410, the system may determine a device type of an activity detection and monitoring device responsible for recording the physical activity data. Device types may be indicative of device capabilities, a type of activity for which the device type is configured for use, device components, data accuracy, data recording parameters (e.g., how frequently data is collected), and the like and/or combinations thereof. The device type may be determined based on various parameters specified in the request (e.g., a device type parameter in a data posting function of the API) or based on an analysis of the physical activity data received. For example, the system may determine if the physical activity data received includes accelerometer data, heart rate data, GPS data and the like. Based on predefined rules, the system may then determine whether the types of data in the physical activity data correspond to a first device type or a second device type. In another example, the system may receive a device identifier such as a user specified name, a brand, a product name, a serial number and the like and determine the device type based thereon. In a particular example, the device identifier may be pre-associated or registered with the device

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type at a time of device registration. Various other manners of determining device type may also be used as needed or desired.

[0043] In step 415, the system may further determine a type of activity associated with the received physical activity data. In one example, this determination may be made based on the type of device from which the data was received. For instance, a first type of device may be configured for a first activity type such as basketball while another type of device may be configured for a second activity type such as running or walking. In another example, the activity type determination may be determined based on a data parameter received by the system. The parameter may be user-specified by a user tagging the activity data with the type of activity performed or may be tagged by one or more devices based on activity type recognition algorithms and methodologies. In one example, a device such as the activity detection and monitoring device may compare the pattern of physical activity data to previous sets of physical activity data and determine similarities. Upon determining that the pattern of physical activity is of a predefined threshold match with a previous set of physical activity data (of a known activity type), the device may determine that the recently recorded physical activity corresponds to the same activity type. Various other functions, algorithms and methods may be used for determining activity type.

[0044] In step 420, the system may be optionally configured to generate activity metrics for the physical activity data received. Metrics may include time, pace, distance, heart rate, body temperature, steps taken, calories burned and the like. In some arrangements, the physical activity data may already include metrics generated by the activity detection and monitoring device or an intermediary computing device. Accordingly, the system may be configured to determine whether metrics have already been generated or included in the received activity data and if not, generate the metrics. However, if the metrics are already generated/included, the system might not generate metrics. In other arrangements, the physical activity data may be raw sensor data that has not been processed into metrics. Accordingly, if the latter, the system may process the raw sensor data into one or more metrics. For example, for accelerometer data and running activities, foot contact time may be identified from sensor data according to various known methodologies, and pace, distance and speed may be calculated therefrom. The metrics may be generated using algorithms and methods selected based on the device type and/or the type of athletic activity performed. For example, different device types may have different calibration values while data for different types of athletic activity may correspond to different types of metrics. Different device types

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may also have different sensors and thus require different types of algorithms for processing the sensor data.

[0045] In step 425, the system may further normalize the activity metrics determined from the activity data. Normalization may be performed to compensate for discrepancies in data accuracy between different devices, different device types, different activity sessions, different activity types and the like. Normalization may be performed using predefined tables or normalization (e.g., calibration) values for adjusting metrics determined for certain types of activities or types of devices. Thus, distance run as determined using a first activity monitoring device may be multiplied by a factor of 1.05 while distance run as determined using a second activity monitoring device may be multiplied by a factor of 0.998. These normalization or calibration values may be determined based on empirical analysis in one or more arrangements. In other examples, normalization and calibration values may be determined based on statistical analyses by asking a user to perform a specified activity (e.g., run 200 feet) and recording and analyzing the resulting data.

[0046] In step 440, the system may determine a number of activity points to award the user based on the received physical activity data. In one example, a table may be used to define a number of activity points to award to a user based on various types of metrics, metric values, device types and activity types. For example, a different number of activity points may be defined for different device types, different activity types or different combinations of device types and activity types. The metrics and/or raw activity data may also be stored (see, e.g., step 435). In some arrangements, activity characteristics such as altitude, terrain, temperature, and weather (e.g., rain, snow, sun) may also be used in the activity point determination process. In one example, a higher activity point accumulation rate may be used for activities at higher altitudes and/or harsher weather conditions (e.g., accumulation rate higher for snow than rain than sun). These accumulation rates may, in some arrangements, be user-configurable for each of the activity characteristics and/or combinations of activity characteristics.

[0047] Once the number of activity points has been determined, the activity points may be added to a total number of activity points for a particular time period in step 445. For example, activity points may be accumulated to achieve a goal during a goal time period (e.g., 1 hour, 12 hours, a day, 2 days, a week, etc.) As such, in step 450, the system may determine whether the user has achieved a goal, reached a milestone or the like based on an amount of activity points accumulated. For example, a user may have a 3,000 activity point

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goal for the day. Accordingly, the system may determine whether the user has achieved 3,000 activity points for the day. In another example, a milestone may be defined as reaching 25,000 lifetime activity points. Accordingly, the system may determine whether a total of all lifetime accumulated activity points has reached 25,000. As such, different activity point counts may be kept for different time periods.

[0048] If the user has reached a goal or achieved a milestone, a reward or alert may be provided to the user in step 455. The reward may include virtual items, services, coupons, tickets, currency, virtual currency, items for an avatar and the like. If a goal has not been achieved or a milestone not reached, the system may indicate an amount of progress still required (e.g., a number of activity points needed) to reach the milestone or goal in step 460.

[0049] In addition to receiving data from devices, the system may also be configured to transmit data to devices. For example, synchronization of data between the system and one or more monitoring devices may include transmitting physical activity data recorded by a first monitoring device to a second monitoring device and/or downloading historical activity data recorded by the first monitoring device back to the first monitoring device. In some instances, not all data may be transmitted from one monitoring device to another and instead, data may be filtered based on data compatibility, activity type, user performing the activity and the like. For example, a receiving device may be required to have the capability to record the same type of data (e.g., have the same type of sensor) as the data to be synchronized from the transmitting device. In another example, data might only be synchronized if the receiving device is configured to track and/or monitor an activity type corresponding to the data. Various other rules may be used to process synchronization requests. Activity points may always be synchronized so long as the receiving device has the ability to track activity points.

[0050] In some examples, transmission and synchronization of data between two monitoring devices may be facilitated by the multi-activity platform and system. For example, the system may be configured to convert data sent using a first communication protocol with which a receiving device is incompatible to a second communication protocol with which the receiving device is compatible. Additionally or alternatively, the content of the data may be modified by the system according to formatting requirements of the receiving device (e.g., character limits, image sizes, number formats, date formats, etc.) and data storage structures or parameters of the receiving device. In one example, user profile information may be automatically imported from one device to another device. Various data

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fields available on the first device might not exist on the second device and thus, the system may filter out data for those fields prior to synchronizing the information to the second device. The system may be configured to perform a variety of other data and protocol manipulation functions to provide compatibility between two devices.

[0051] As discussed, an activity monitoring device such as device 103a, 103b or 103c may initially detect and store activity data and subsequently synchronize the data with one or more of a local device/application (e.g., device 105c) and/or a remote multi-activity system/server (e.g., system 107). In one arrangement, the multi-activity system/server may represent a destination or preferred storage site due to a larger storage capacity. Accordingly, data recorded by the activity monitoring device and/or synchronized to a local device/application such as device 105c may be ultimately transferred to the multi-activity system/server for long-term storage so as not to require and/or occupy large data storage capacities in the monitoring device and/or the local device. The local device may be a mobile communication device such as a smart phone, a portable media device, tablet computer, netbook computer, or laptop computer and/or a stationary device such as a desktop computer.

[0052] In some arrangements, an intermediary device such as device 105a may execute a synchronization application configured to synchronize data between the activity monitoring device and the multi-activity system/server. Such an intermediary computing device and synchronization application might not be configured to synchronize data between the intermediary device and the activity monitoring device. Instead, the synchronization application might only synchronize data between the activity monitoring device and the multi-activity system/server and only provide such synchronization functionality when a connection to the multi-activity system/server is available. In another example or arrangement, a local application/device may synchronize activity data from the activity monitoring device independently of synchronizing the data with the multi-activity system/server. Once a network connection is available with the multi-activity system/server or when the user elects to synchronize with the multi-activity system/server, the data may be subsequently synchronized to the multi-activity system/server from the local device/application.

[0053] Other synchronization processes may also be used. For example, a local device/application may synchronize data through the intermediary application/device. In yet other examples, the activity monitoring device may be configured to communicate directly with the multi-activity system/server (e.g., without first communicating with the local

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device/application or the intermediary application/device) and synchronize data therewith. As well, the one or more intermediary devices, with or without any local device(s), may synchronize among any combination thereof, e.g., depending on connectivity, the desirability to keep such combination(s) of devices in synchrony or otherwise. The activity monitoring device may or may not be synchronized together with any such combinations of intermediary and/or local device(s). The multi-activity system/server may or may not be synchronized together with any such combinations of intermediary and/or local device(s) and/or activity monitoring device.

[0054] In order to reduce the amount of overlap in data transmitted and synchronized, various parameters/settings may be defined to track the data that has been synchronized to the multi-activity system/server and to a local device/application. In one example, the activity monitoring device may store two parameters: a local read offset (LRO) and a local read time stamp (LRTS). The local read offset (e.g., memory location identifier) may indicate the offset in the activity monitoring device storage (e.g., flash memory) at which the local application/device should begin reading activity data from the monitoring device when synchronizing. For example, this memory location or offset may specify a location where a first unread activity data record is stored. In some arrangements, the LRO may represent a synchronization offset for the local application/device to which data is synchronized (versus the multi-activity system/server to which data might also be synchronized). The local read time stamp indicates the time stamp of the last sample read by the local application from the activity monitoring device storage. The time stamp may correspond to a time at which the sample (e.g., activity data) was recorded by the monitoring device. These parameters are set when (e.g., during or after) the local device/application synchronizes with the activity monitoring device. For example, the activity monitoring device may set and/or store the local read offset based on the memory location of the activity monitoring device storage last read by the local device. In particular, the local read offset may correspond to the offset of the last memory location read by the local device incremented by one position or memory location (e.g., the first new activity data memory location). As such, the LRO and LRTS may help the activity monitoring device, local application/device and/or the MSP track the data that has been read and/or the data that has not been read, so that read data is not re-transmitted needlessly to the local application/device during synchronization.

[0055] Additionally, the multi-activity service/system may define a last synchronization offset (LSO) and a last synchronization time stamp (LSTS). The LSO may refer to the offset

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(e.g., a memory location identifier) in the activity monitoring device's storage memory at which reading and synchronization of data to the multi-activity service/system should begin. The LSO may be different than the LRO if the local synchronization device has read more or less data than the amount of data that has been synchronized to the multi-activity service/system. In some examples, the LRO/LRTS may be updated independently of the LSO/LSTS and vice versa. That is, one set of parameters may be updated without updating the other. On the other hand, if the same data that has been synchronized to the multi-activity service/system has also been read by the local device/application, the LSO and the LRO may be the same.

[0056] The local device may update (or cause the activity monitoring device to update) the LRO and LRTS upon synchronizing data with the monitoring device. Moreover, the local device may update the LSO and LSTS, or cause the LSO and LSTS to be updated upon synchronizing data stored in the local device to the multi-activity service/system. In some examples, when the intermediary device/application conducts synchronization between the monitoring device/application and the multi-activity system/service, only the LSO and LSTS may be updated since the intermediary device does not, itself, store and synchronize any data. In such an event, the LRO/LRTS may also be updated to indicate to the local device that further data has been already been synchronized to the multi-activity service/system and that the local device does not need to further synchronize that data to itself. In one example, the intermediary device/application may initially request the LSO and LSTS from the multi-activity service/system and use the LSO and LSTS to determine a start point in the activity monitoring device's memory for reading data and synchronizing the data with the multi-activity service/system. In some arrangements, the LRO/LRTS might only be updated if the LSO/LSTS has been updated to a point beyond the LRO/LRTS (e.g., in a data storage progression). Using the above process, the multi-activity service/system may avoid receiving data (e.g., from the local device) that has already been synchronized to the multi-activity service/system in the past (e.g., directly from the monitoring device or through the intermediary device).

[0057] Additionally or alternatively, data of the monitoring device already synchronized to the multi-activity system/service may be deleted from the monitoring device. In another example, the data may be deleted if the multi-activity system/service has not been synchronized with that data; in such case of deleted data, a notification or indicator may be provided to the activity monitoring device, a local device, an intermediary device and/or the

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multi-activity system/server indicating that synchronization is to be performed with the local device storing the data that has yet to be synchronized with the multi-activity system/service

[0058] However, data only synchronized to a local device, and not the multi-activity system/service, might not be deleted. Examples of circumstances in which data might not be deleted include, e.g., to maintain redundancy as to the synched data (such as until a selected time has elapsed or a selected event occurred, such as synchronization to a predetermined device or number of devices, or to the multi-activity system/service), or in the event the user wishes to later synchronize the data through the intermediary device/application instead of using the local device, and/or in the case the user wishes to synchronize additional local devices from the monitoring device. In other examples, the data may be deleted if the multi-activity system/service has not been synchronized with that data. Instead, a notification or indicator may be provided to the activity monitoring device, a local device, an intermediary device and/or the multi-activity system/server indicating that synchronization is to be performed with the local device storing the data that has yet to be synchronized with the multi-activity system/service. Data synchronized to the multi-activity system/service might not be deleted from the activity monitoring device in some instances if, for example, the data has not yet been synchronized to the currently proximate local device/application. The deletion of data from the activity monitoring device may be configurable by the user. Alternatively or additionally, data may be deleted once synchronized to the multi-activity system/service and/or to any other device in the event that the amount of space remaining on the activity monitoring device decreases below a specified threshold.

[0059] According to other aspects, data from an activity monitoring device may be synchronized to multiple local devices. In such a configuration, each local device may set to a different set of LRO and LRTS markers unique to that local device.

[0060] In yet other arrangements, if a local device determines that the user is attempting to synchronize a threshold amount of data from the monitoring device, the local device may provide a message/recommendation to the user to use the intermediary device/application instead. This recommendation may be provided in circumstances where the intermediary device/application is configured to read data off of the monitoring device at a faster rate than the local device (e.g., USB vs. BLUETOOTH).

[0061] In yet other examples or arrangements, the above described offsets and synchronization processes may be activity type or device type specific. For example, a running LRO, LRTS, LSO and LSTS may be defined specifically for a buffer or storage area

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configured to store running data while a basketball LRO, LRTS, LSO and LSTS may be defined for a different buffer or storage area configured to stored basketball data. Similar offsets and/or storage areas may be defined for different data recording device types. Accordingly, applications that are configured to synchronize one type of activity or data from one type of device but not another may modify the offsets/parameters for only one of the storage areas/activity types/device types while not affecting the others. Such a configuration may add flexibility to synchronization capabilities.

[0062] By using the above noted offsets and timestamps, the amount of data that may be synchronized is optimized such that new or unsynchronized data is to be synchronized to a recipient device.

Monitoring Device Setup/Configuration

[0063] A multi-activity platform and system may further allow devices, systems and applications to setup and configure various types of monitoring devices. In some arrangements, an intermediary computing device such as device 105a or 105b may serve as a multi-activity system that is configured to communicate with and interact with a various monitoring devices and device types that may be configured to detect and monitor a variety of types of activity. For example, intermediary application or computing device may be used to register users or devices with a multi-activity service or system such as an on-line community or service. In a particular example, the intermediary application or computing device may be configured to register multiple different devices and device types.

[0064] FIGS. 5A-5E illustrate example interfaces for a device setup and configuration application that may execute on a user's local computing device to which an activity monitoring device may be connected. In one example, the application may be stored in the activity monitoring device and downloaded and installed to a user's device upon connection. Alternatively or additionally, the activity monitoring device may store a location identifier such as a URI with an instruction for the computing device to retrieve and install the data located at the URI. In still another example, as illustrated in FIG. 5A, the activity monitoring device may specify a URI where the device may be introduced and an option may be provided to download a corresponding application for configuring the device. The local computing device may then automatically navigate to the URI upon connection of the activity monitoring device.

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[0065] FIGS. 5B-5D illustrate example device configuration interfaces that may be provided upon downloading the device configuration application. FIG. 5C, for example, allows the user to specify user characteristics such as height and weight to help better calibrate the device as well as identify a wrist on which the device will be worn. Other types of user characteristics may be defined and provided as configuration options as desired or needed. For example, the device may be worn on other parts of the user's body. Age may also be added as a user characteristic for calibration purposes. In FIG. 5D, the user may be presented with an interface for setting an activity goal. The user may select any of multiple predefined levels or define his or her own goal manually (not shown). The goal may then be stored to the monitoring device for goal tracking and progress monitoring.

[0066] FIG. 5E illustrates an example interface through which a user may create or login to an on-line activity tracking and monitoring service. The user may be provided the option of registering a username specific to the service or using a login for an external site (e.g., an external social community network) as a login for the activity tracking and monitoring service. The various configuration and login information may be communicated to the monitoring device through the shared API as discussed herein. Additionally, a status of the device may be retrieved using the shared API as well. Other monitoring devices and device types may similarly be configured using the shared API. For example, the configuration and setup application may be configured to interact with multiple types of monitoring devices.

[0067] FIGS. 5F-5I illustrate further example application interfaces through which a user may configure an activity monitoring device. In FIG. 5F, for example, a user may specify his or her birthdate, gender, height and weight. In FIG. 5G, the user may further indicate how the device should obtain a time of day. The user may manually enter the time of day or may obtain time and date information from one or more other systems such as the computing device through which the device is being configured, a cellular system, a satellite and the like. The user may also indicate whether 24-hour or 12-hour time should be used. FIG. 5H illustrates an interface through which a user may select metrics that are to be displayed on the device. For example, a user may select to display calories, but not steps. Other settings may similarly be defined. FIG. 5I illustrates an interface through which a user may configure display options such as whether to use a goal indicator light and/or to include goal celebrations. Various other configuration options may be added or removed as desired or needed.

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[0068] The configuration application may be configured to interact and configure multiple different types of devices. Accordingly, the configuration interfaces may differ in content and/or appearance depending on the type of device connected. In one example, the application may identify the type of device connected and automatically execute the appropriate APIs and display the corresponding interfaces for the identified type of device. The different interfaces may offer different configuration options such as different displayable metrics, color configurations (e.g., if the device support color displays), display configurations (e.g., different options depending on a number of displays included in the device) and the like and/or combinations thereof.

[0069] FIG. 6A illustrates an example interface conveying a battery charging status of the device. In some examples, the device might not be useable for a first time until the device has reached a specific level of charge (e.g., 50%, 65%, 70%, 80%, 90%, 95%, 100%, etc.).

[0070] When the device has reached the requisite level of charge, a display such as the interface of FIG. 6B may be provided.

[0071] FIG. 7 illustrates another example configuration interface through which a user may define or redefine his or her goal. The user may change a goal for the current time period or for any other time period as desired. Once the user has confirmed a goal, the goal information may be synchronized to the user's device using the various shared APIs described herein.

Multi-Activity Community

[0072] A multi-activity system or service may include an on-line community or site that allows a user to review activity information for not only his or her activities but for other activities. The review may include a variety of information types including audio, video, text and the like. For example, motivational messages (e.g., user generated or system generated) may be provided to users through audio messages. Users may also record audio notes to be stored in association with one or more activity sessions, goal time periods or the like.

[0073] The on-line community or site may provide a user with different initial interfaces depending on the user's status. For example, if the user is new to the community, a first interface may be displayed. On the other hand, if the user is a returning user, a second interface may be present to the user upon login.

[0074] FIG. 8A illustrates an example welcome interface that may be displayed for a new user on an on-line community or site upon user login. The interface may provide options to

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the user to purchase activity monitoring devices, or to specify the type of monitoring device or other equipment that the user already has purchased and/or will be using if known. In some arrangements, the registration/configuration application may automatically notify the on-line community of registered devices and thus, the welcome interface for users (regardless of new or returning) may acknowledge the existence of a registered device upon login. For example, the list of product recommendations might not include ones already purchased and/or registered. The interface of FIG. 8A may further provide a link to download a registration/configuration application. Again, if the user has already downloaded the application, the interface might not provide the link.

[0075] FIG. 8B illustrates an example welcome interface that may be displayed to an existing user of the on-line community/site. Instead of recommending products or providing options for downloading device applications, the interface may include options for viewing activity data. Activity data may be categorized based on type of activity and/or type of device used to record the activity data. Accordingly, the interface may provide multiple options for review of activity data depending on the types of activity in which the user has engaged and/or the types of devices the user has used to record his or her activity. As discussed herein, a multi-activity platform and system may be used to receive and differentiate between data of different activity types and device types. Accordingly, the on-line site/community may automatically recognize when different activity types and device types are represented in the activity data.

[0076] Additionally or alternatively, activity of different activity types or recorded using different device types may be visualized in different ways (e.g., colors, themes, interfaces, types of graphs, types of statistics, etc.). FIGS. 9A and 9B illustrate different interfaces that may be generated and displayed depending on the type of activity data that is to be viewed. FIG. 9A, for example, displays activity data recorded using a first type of monitoring device in a first type of visualization interface. Details of the interface are described in further detail herein. FIG. 9B illustrates a second type of visualization interface for visualizing activity data recorded using a second type of monitoring device. Types of devices may differ based on capabilities, calibration, types of sensors used, area on which the device is configured to be worn and the like. Accordingly, different visualizations and/or interfaces may be provided for different types of devices regardless of the type of activity performed (e.g., the types of activity recorded using the different types of devices may be the same or different). In a particular example, a first visualization or set of visualizations may be automatically

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generated upon uploading/receipt for data from a first type of device and/or a first type of activity performed while a second visualization or set of visualizations (different from the first visualization or first set of visualizations) may be automatically generated for data from a second type of device and/or a second type of activity performed. While the user may request additional types of visualizations (e.g., those provided as part of the first set of visualizations) for the second type device or second type of activity, only the second visualization or set of visualizations may be automatically provided as an initial set available upon upload/receipt of the data.

[0077] In other examples, various activity metrics may be viewed in a same interface or display regardless of the device type or activity type. For example, users may be able to track progress toward a goal that may be achieved through performance of multiple types of activities and regardless of the type of device that is used to record those activities. Additionally or alternatively, different graphs (e.g., line graphs, bar graphs, etc.) may be overlaid on the same chart/axes.

[0078] FIGS. 10A-10G illustrate example activity tracking and monitoring interfaces that may be used to track multiple types of activities and activities recorded using multiple types of monitoring devices. The interfaces may also be used to tag additional information about the various activities and activity sessions performed and to track progress toward an activity goal. FIG. 10A, for instance, illustrates an interface indicating that that user has recorded no activity and made no progress toward an activity goal. The interface of FIG. 10A may be displayed, for example, when a user first registers with the service and has not performed or synchronized any activity data with the on-line community. The interface may further display information such as an amount of progress toward a milestone. A milestone may differ from a goal defined for a specified goal period. For example, a goal period may be of a finite amount of time and goal progress may be determined based on activity performed during that finite amount of time. Goal time periods may also be recurring on a regular schedule. Milestones, on the other hand, may refer to achievements reached over a course of a user's lifetime of activity performed (e.g., reaching 50,000 activity points in the user's lifetime). Milestones may be unique. For example, each milestone might only be achieved once. Alternatively, milestones may be defined for finite time frames including a goal time period. In some examples, milestones may be defined for any time period different from a specified goal time period. In still other examples, milestones and achievements may relate to metrics other than a goal metric. Additionally or alternatively, milestones may also be

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uniquely generated/defined for each user based on user characteristics, interests, etc. For example, if a user enjoys running versus playing basketball, a distance milestone may higher than for a user when enjoys playing basketball more than running. Milestones may further differ for varying ages or age groups. Various configurations of milestones and goals may be used.

[0079] The activity tracking interface may further include a section comparing a user's performance against users of the community and/or groups of users in the community. For example, in FIG. 10A, the user's weekly activity points are compared against the entire community of users as well as a community sub-group of men of the same age as the user. The user may configure (e.g., select and/or define) the sub-groups and number of sub-groups to which his or her performance is to be compared. The user may further configure the activity time period to be compared (e.g., daily, weekly, monthly, etc.).

[0080] FIG. 10B illustrates an interface that may be displayed when a user has recorded and synchronized activity data. As shown, the interface indicates that the user has made progress toward a milestone of accumulating 10,000 activity points over the user's lifetime. The interface may also include an option to view subsequent milestones. Milestones may be consecutive or progressive in nature such that a user must complete a first milestone before reaching a second milestone.

[0081] FIG. 10C illustrates another interface displaying a user's progress made toward a goal as well as a milestone. Other activity summary information may also be provided including whether a streak has been achieved and a length of the streak, a number of goals reached, and various metrics for a selected goal time period. In one example, a section of the interface may display detailed metrics and activity information for a selected goal time period. Different goal time periods may be displayed as selectable section labels along a side of the display section. In addition to identifying the goal time periods (e.g., days, hours, weeks, etc.), the section labels may also display a progress made toward the goal for those time periods. For example, the section labels may indicate whether the user completed the goal by that day, whether a moderate amount of progress was made toward the goal (but not completed) or if a low level of progress was made toward the goal. Other indicators may also be included as part of the goal time period section labels. For example, if a user reached a milestone during that goal time period, another symbol or indicator may be displayed. In another example, if a user exceeded his or her goal by a specified amount, yet another symbol or indicator may be used as indication. Different colors, indicators, patterns, symbols,

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characters, transparencies and the like may be used to differentiate between goal progresses, other achievements, events and the like.

[0082] The activity detail display for a goal period may include a goal meter that indicates whether the user met his or her goal and if not, an amount of progress made towards the goal. In addition, a graph may be displayed to illustrate a breakdown of activity level over the goal time period. Various peaks in activity may also be identified in the graph with an indicator such as "SPARK." Peaks may be defined by an activity level exceeding a threshold amount of activity, the top number of activity levels in the goal time period, and the like. For example, the top 1, 2, 3, 4, 5, 10 peaks may be indicated in the graph. Various metrics may also be displayed in a portion of the detail display such as calories burned, distance traversed, steps taken and/or time active. Another portion of the display may display a current streak (e.g., a current number of consecutive goal time periods in which the goal has been reached) and a number of goals hit in the user's lifetime (or a specified time period). This portion of the display may display a streak tracker that provides an indication of a number of consecutive goal time periods including a current goal time period and a goal progression status for each of those time periods. The interface may also identify the longest streak the user has achieved. Alternatively or additionally, the system may also provide an indication of a number of streaks achieved. In yet another portion of the interface, the display may provide a recommendation for raising or lowering the goal. For example, if a user has exceeded previous goals by a specified amount (e.g., an average amount by which the user exceeded one or more previous goals, an accumulated amount by which the user exceeded the one or more previous goals, a greater, median or lowest amount by which the user exceeded one or more previous goals, etc.), the system may recommend that the user increase a next goal (e.g., by that specified amount or an even greater amount).

[0083] FIG. 10D illustrates an example general summary interface that is not specific to any particular goal time period. The general summary interface may provide information regarding a recent predefined time period such as a most recent week, month, year, a time period since a last synchronization with a monitoring device or a particular monitoring device and the like. The general summary interface may indicate a number of achievements reached, an amount of activity points earned since the last synchronization and/or a number of active days (e.g., a number of days in which a threshold level of activity was reached).

[0084] FIG. 10E illustrates an achievement celebration, where the achievement corresponds to exceeding a goal by 40%.

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[0085] FIG. 10F illustrates an interface through which a user may specify a subjective feeling they had toward or during the activity time period or activity session. The user may select/specify an emoticon and/or provide user-specified comments or notes regarding that time period. This information may then be stored in association with the goal time period, activity session, and/or the user's account. In other examples, activity sessions and activity points may be tagged or otherwise labeled with location information and/or time information. Geographic location may be tagged using one or more location determination systems such as GPS, cellular triangulation, Wi-Fi location determination based on ISP and the like. Location determination systems may be internal to or integrated with the device or may be separate from the device (e.g., a mobile communication device such as a smart phone having GPS functionality). Time may be determined based on the time of the device or times of other devices, servers and systems. Accordingly, activity points and activity data in general may be filtered and viewed in a granular fashion based on geographic location and/or time. This tagged or additional information relating to particular activity points or activity sessions may be stored as metadata in one or more examples.

[0086] FIG. 10G illustrates an interface that may be displayed after a user has entered a user's subjective feeling and notes about the activity time period.

[0087] FIGS. 11A and 11B illustrate example interfaces providing a detailed graph of activity performed for a period of time such as a goal time period. A user may hover over or otherwise interact with portions (e.g., any portion or specific portions) of the graph to obtain activity metrics and information specific to the particular point in time or of the graph. Indicators may be provided on the graph to indicate various events such as a point at which the user hit the goal and a peak activity level. For example, FIG. 11D illustrates an indicator identifying a time period such as an hour in which the user was most active. If the goal time period displayed corresponds to a best day, a banner or other indicator may also be displayed in the detailed interface. A best day or best activity time period may be defined as a day or other time period during which a highest amount of activity points was earned, a metric reached an all-time high (e.g., a pace, distance, etc.), a user was active for a greatest amount of time (e.g., most active hours) and the like. A portion of the interfaces may also display a comparison of the current time period against other time periods.

[0088] FIG. 11C illustrates a best day indication interface.

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[0089] FIG. 12 illustrates an interface in which a user's activity over a time period may be replayed. For example, the graph may be animated such that the user's activity is graphed in animation fashion over the goal time period.

[0090] In some examples, the interfaces may display activity levels along with a breakdown of types of activities and types of monitoring devices that contributed to the accumulated activity. For example, hovering over or otherwise interacting with a graph of activity points may display a list of activity types, activity sessions, device types and the like that are associated with the activity points accumulated. The list of activity types, activity sessions and/or device types may further include an indication of an amount of activity points accumulated for each of those various parameters. The user may also filter data displayed in an activity point graph by the above noted parameters. For example, the graph may be filtered such that only activity points accumulated from a particular type of activity is displayed. In another example, the graph may be filtered such that only activity points accumulated using a particular type of monitoring device is displayed in the graph. In yet another example, the graph may be filtered such that only activity points accumulated during a particular activity session are shown. In still other examples, activity data and activity points may be associated with specific monitoring devices. Thus, a user may be able to differentiate between activities performed and activity points accumulated based on the device that was specifically used. Additionally or alternatively, the activity points corresponding to the different types of activities, different types of monitoring devices and/or different activity sessions may be displayed with different appearances in the graph. For example, accumulated activity points for a first type of activity may be displayed in red while activity points accumulated for a second type of activity may be displayed in yellow and so on. In a particular example, the different activity types may be included in the same bar graph or line graph, but each portion corresponding to a different activity type may be displayed with a different appearance. Various other visual configurations may be employed and may be user specified.

[0091] FIGS. 13A, 13B and 13C illustrate example summary interfaces displaying a user's activity levels over a week, month and year, respectively. Each of the interfaces in FIGS. 13A-13C may display the user's activity level of those time periods with a further breakdown based on a smaller time frame. For example, a weekly summary may include daily bar graphs while a monthly summary may include weekly bar graphs. Interacting with (e.g., hovering over) one or more of the entries may display more specific activity

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information and details including metrics, types of devices used, activity sessions, types of activities performed and the like and/or combinations thereof. The interfaces may also display a goal completion rate for that summary time period. For example, in the weekly summary of FIG. 13A, the interface may display a number of daily goals hit and/or a percentage of goals reached.

[0092] FIGS. 14A-14D illustrate example profile pages for a user. The user's profile page may include a listing of records, recent activity, achievements, milestones, awards and the like. Additionally, the user's profile may provide summary information for the user including a device most used or device type most used, a type of activity most frequently performed, activity point averages, other average metrics, personal information (e.g., name, age, location, birthdate, etc.) and the like. FIG. 14A illustrates a profile interface that may be displayed when the user has not registered or synchronized any activity data. In some arrangements, the user's profile page may also display devices and/or types of devices the user uses for recording activity.

[0093] FIG. 15 illustrates an example device setting interface. Each device registered for the user may have a different device setting interface on the on-line site. The device setting interface may display information about settings registered in the device such as a current time and date recognized by the device, types of data (e.g., metrics) to be displayed on the device, an orientation of the device (e.g., a wrist or other location on which the device is worn) and a language setting. In some examples, the interface may allow the user to edit or update settings on the device. The interfaces for the different devices may include different setting parameters and information. For example, an interface for a first device may include GPS settings while an interface for a second device might not include GPS settings if the second device does not include a GPS sensor. The device-specific interfaces may also include activity data and summaries (as described herein) for activities detected using the corresponding device. Accordingly, these sub-interfaces may allow a user to display activity of the user at a more granular level. In some arrangements, an on-line site or community may further identify a type of device or a specific device most frequently used by the user to record activity data or a device or type of device with which a user has recorded a most amount of activity.

[0094] FIGS. 16A and 16B illustrates example notifications that may be displayed to a user through an on-line activity tracking site.

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[0095] FIGS. 17A-17D illustrate example interface for sharing activity data. In FIG. 17A, for example, a user's profile may be populated with information about other users. For example, a notification or news event may be posted to the user's profile to alert the user of the other user's recent activity or activity event. For example, the other user may have recently completed a goal or reached a milestone. Such events may be displayed to the user to act as motivation and to encourage the user to congratulate the other user. Activity sharing may be configured on or off. Other sharing parameters may be defined as well. For example, a user may identify users and/or groups to which activity should be shared. In other examples, a user may define times during which sharing is allowed and/or types of events or activities that may be shared. In a particular example, a user may specify that events or activity data resulting from a first type of device, a first type of activity or a particular activity session is to be shared while events and/or activity data resulting from a second type of device, a second type of activity or another specific activity session is not to be shared. Thus, the use of the multi-activity platform allows a system to provide more granular control in sharing activity information. Activity may be shared through the user's profile (e.g., when other user's view the user's profile) or as part of other user's profile, activity feeds and the like. For example, activity events and information of a first user may be pushed to a profile or page of another user.

[0096] FIGS. 17B-17D illustrate example interfaces for sharing activity information and events through external social community and networking sites. FIG. 17B illustrates an interface including options for sharing on FACEBOOK or TWITTER. FIGS. 17C and 17D illustrate pop-up interfaces through which a user may submit a note, specify activity information to be shared, identify users to which the information is to be shared, and the like. As with configuration information that is and is not to be shared, the user may configure sharing of information through external sites and systems based on device type, activity type, activity session and the like as well. In one example, the user may configure sharing of information through external sites and systems separately from sharing through internal systems or communities.

Multi-Activity Application/Device Interface

[0097] Interaction between activity monitoring devices, activity tracking services and systems, intermediary devices and other computing devices or systems and/or applications executing thereon may be conducted using a shared application protocol interface (API). For

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example, applications executing on a smart phone may use the API to retrieve data from and transmit data to activity monitoring devices adopting the API. Similarly, communications between an activity monitoring device and an activity tracking service or system may be conducted using the API. Communications between dedicated activity monitoring devices may also be conducted using the shared API. The use of such an API allows for interoperability between devices of different types and activity data of different types. An example of the protocol is described in further detail below.

Activity Data Tracking and Processing

[0098] The API for activity data tracking and processing may include a variety of functions including activity deletion, activity detail requests for one or more activities, activity listing requests, activity summary retrieval, posting and deleting tags, requesting activity type-specific information, requesting activity data based on date ranges and the like. The API may be used for monitoring devices and other devices to interact with a multi-activity system as well as for the multi-activity system or other computing devices to retrieve information from and transmit information to the monitoring devices.

[0099] Activity Delete: This service/interface may be used to delete an activity (e.g., an activity session having a particular activity session identifier). Once deleted, a user will no longer be able to view this activity, and it might no longer be used for any calculations, aggregations or challenges. For example, a number of activity points awarded for the activity may be deducted from a total activity point amount upon deletion. Alternatively or additionally, the activity delete function may be activity type-specific. Accordingly, an activity delete command may cause all activity data for a particular type of activity to be deleted.

[00100] Activity Detail: Devices may also be able to retrieve detail on a single activity or activity session or by activity-type. This service returns all the information related to a specific activity using the activity ID as parameter or activity type and/or a list of activity sessions of an activity type using type specifications. Details may include raw sensor data, metrics, location information, participating individuals and the like.

[00101] Activity Detail for the Last Activity: This service returns information related to the last activity session. Accordingly, instead of having to be aware of the ID of the last activity session, the system may provide a function call that is particular to the most recent activity. The user may also specify an activity type, thus allowing a device to select a last

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activity session for a particular activity type. Similarly, other types of parameters may be used to further or differently distinguish between last activity sessions.

[00102] Activity List: Return a list of the user's activities. This service is useful for any application wishing to obtain a list of activities by date, time or index. For example, a device may request all activities performed between two particular dates or times. The list may further be filtered based on other parameters including activity types, device type, device ID, activity characteristics (e.g., above or below a threshold pace, a particular weather condition, a particular terrain or location, activity equipment used etc.) and the like. Retrieval using indices may refer to specifying an activity ID range and retrieving all activities within that ID range.

[00103] Activity Summary for the Specified Month: This function allows a device to retrieve a user's activity summary for a specified month. The activity summary may include statistics regarding a number of goals met, an average number of activity points earned (or other activity metric), identification of streaks of goal completion and the like, as is described in further detail below.

[00104] Activity Summary for the Specified Week: Get a user's activity summary for a week.

[00105] Activity Summary for the Specified Year: Get a user's activity summary for a specified year.

[00106] Activity Update: This service returns all the information related to a specific activity using the activity Id as a parameter. In some examples, this function may include a date or time parameter specifying a last time when information relating to the specific activity was retrieved. The device or system from which this information is requested may then transmit all information that is new as of the specified date or time.

[00107] Basketball Activity Detail: As described, activity data requests may be activity type specific. Accordingly, an activity type specific function may be provided to retrieve details on a single basketball activity session. This service returns all the information related to a specific activity using the activity Id as parameter.

[00108] Basketball Activity List: Return a list of the user's basketball activities.

[00109] Customized Tags: Adds user customized tags for specified user. For example, a user may be allowed to define customized characteristic tags for activity sessions. Tags may include, weather, equipment, terrain, food eaten prior to the activity session, user-specified notes and the like.

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[00110] Daily Activity Point Summary Service: Gets a user's daily activity point history over an interval. For example, a time period such as 9 AM – 12 PM or 9 AM – 6 PM may be specified and data for that time period may be retrieved for each day. Alternatively or additionally, different activity point periods may be defined for retrieval such as a weekly activity point history or an hourly activity point history.

[00111] Delete Tags: Deletes the user tags for a specified activity.

[00112] Extended Metrics: Adds user extended metrics for specified activity or gets a list of the extended metrics associated with the activity Id or deletes a list of the extended metrics. Extended metrics may refer to metrics that are not automatically synchronized. In other examples, extended metrics may refer to any metrics that are user entered/specified (e.g., not automatically detected or generated by an activity tracking device or monitoring system).

[00113] Get Datastreams for Start and End Time: Get datastreams for a start time and an end time. This service returns all the datastream information related to the user between the designated start and end time parameters. For example, the datastream may include activity data and information as well as other actions taken by the user such as updating of a profile, adding a friend, setting a goal and the like. Accordingly, this function allows for retrieval of data beyond recorded athletic activity data and may include all actions taken with a particular device to which the command is being sent.

[00114] Get Tags: Gets the user tags for specified activity session. In one example, this function may enable a device to retrieve the values for various tags within activity data. In some arrangements, various sets of tags may be defined for different activity types (or for different device types). Accordingly, upon determining the tags that are associated with an activity type or device type, the system may retrieve or extract values for those tags from the activity data

[00115] Get User Events: Return list of user events to be displayed. User events may refer to actions taken by the user or achievements/goals reached.

[00116] Post Tags: Adds the user tags for specified activity. Accordingly, a user may tag activity data stored on one device via a second, physically separate (and potentially remotely located) device.

[00117] Post Tags By Date Range: Tags all the activity sessions in the specified date range with one or more specified tags. Tags may relate to a user's subject feeling, weather conditions, terrain, equipment used and the like. In some examples, the function may also be

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configured to automatically calculate the values for tags associated with the activity type and store those values in association with the tags for the activity session or activity data.

[00118] Running Activity Detail: This service returns all the information related to a running activity using the activity ID as parameter.

[00119] Running: My Activities: Returns a list of sport activities for running and their aggregations.

[00120] Running: My Activities v1.0: Returns activity report, activity history details and lifetime details for a user for running activities.

[00121] Running: My Activity: Returns a sport activity by activity id for a user.

[00122] Training Activity Detail: Get detail on a single activity. This service returns all the information related to a specific activity using the activity Id as parameter.

[00123] Training Activity List: Return a list of the user's activities summary for a training-type activity.

Challenges

[00124] Challenges may be issued and conducted between two users using two different devices and device types. The following provides a list of APIs that may be used to create, track and complete a challenge.

[00125] Accept Challenge: Accept a challenge.

[00126] Accept or Deny Challenge: Accept or Deny challenge will be a user's response once they have been invited to a challenge.

[00127] Add Challenge: Add a challenge with the supplied information such as an objective, a duration, participants, whether the challenge is public or private, location, name of the challenge, start time and the like. In some instances, the add challenge service allows a user to specify a predefined challenge type such as Create Daily Goal, Challenge of the Week, Head to Head, Group Fuel Goal, Group Workout, Drill Based Challenge and Team Up, as described in further detail herein. Privacy levels may also be set. For example, the following table describes example privacy levels.

Id	Description
0	Private. You can only join if invited by the challenge creator. Only the participants can view the results of the challenge.

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1	Participants and friends of creator can view. Does not appear on searches. (Note: As the concept of friends does not exist right now on MSP, 0 and 1 are the same.)
2	Public. Appears on searches. Anybody can view the challenge details and leader board, but not join.
3	Public. Appears on searches. Anybody can join, view the challenge details and leader board.

[00128] Create or Update Challenge: Using this service, different types of challenges can be created/updated. The business rules and required parameters depend on the type of the challenge being created. The challenge types are: Create Daily Goal, Challenge of the Week, Head to Head, Group Fuel Goal, Group Workout, Drill Based Challenge and Team Up.

[00129] Challenge of the Week: Creates a challenge of a type that can only be created once a week. The challenge of the week may include various rewards that are specific to this type of challenge.

[00130] Create or Update Daily Goal: This service is used to create/update the daily goal for a specified date. If the date supplied is today, the daily goal for today will be changed/updated. If the date supplied is any date in the future, the future daily goal value will be changed. An error will be returned if the date supplied is prior to today.

[00131] Drill Based Challenge: Challenges can be created based on a drill. This form of the service will look up the details of an existing drill and create a challenge matching the parameters of the drill. Drills may refer to a predefined sequence of physical movements at specified times. Groups may or may not be supported. The overview of this Head to Head challenge is of a non-competitive variety. A challenge of this type indicates that the creator of the challenge invites her/his friends to beat their challenge. Whether the participants beat the challenge or not, the result is sent to back to original challenge poster. That is, the participants performance are not compared with one another and is, instead, compared to the objective. Thus, multiple participants may beat the challenge.

[00132] Get Challenge Details: Gets all the details of a challenge and the associated leaderboard (e.g., a listing of participants and a current level of performance/progress). In some arrangements, this function may check whether the logged-in user has permissions to see the requested challenge details.

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[00133] Get Challenge List 1.0: Get a list of the challenges past and present on which a specific user has participated either as creator or as member. The list may be ordered by the end date of the challenge with the most recent challenge listed first. This service also lists goals, which is a type of challenge (me vs me) where there are no challenge members (other than the creator/user) or leaderboard.

[00134] Get Daily Goal List: Get a list of daily goals across multiple dates for the given user.

[00135] Group Activity Point Goal: The group activity point goal is a challenge type, which is individual based (but in a team), and non-competitive. A challenge of this type involves a creator of the challenge inviting her/his friends to join in the challenge and the sum of the activity points of all of the members/participants should be larger than a predetermined amount at the end of the challenge. There may be several business rules for this challenge type. For example:

1) A user can have up to 5 challenges of this type, including created challenges and accepted challenges, e.g., if a user has already created 5 challenges, the user cannot accept other challenges.

2) Each challenge of this type may hold up to 5 users (excluding the creator), i.e., the creator of a challenge can specify at the maximum 5 friends to send invitations to.

3) Challenges of this type may always be 7 days long.

4) After a challenge ends, velocity can make a call to create a new challenge with the same parameters.

5) The invitation can be accepted at any time within the 7 days, the amount of fuel earned since the start time will be credited to the challenge.

6) A challenge is not expected to be changed after it is created.

[00136] Other rules, restrictions and the like may be defined and is not limited to the above example.

[00137] Group Workout: The group workout is a challenge type, which is individual based (but in a team), and non-competitive. A challenge of this type is that the creator of the challenge invites her/his friends or other participants to join in the challenge and each member in the challenge should do at least the predetermined amount of workout. There may be various business rules for this challenge type. For example:

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1) A user can have up to 5 (or any other number) challenges of this type, including created challenges and accepted challenges, e.g., if a user has already created 5 (or other number) challenges, the user might not be allowed to accept other challenges.

2) Each challenge of this type can hold up to 5 users (excluding the creator), i.e., the creator of a challenge can specify at the maximum 5 friends to send invitations to.

3) Challenges of this type might always be 7 days long.

4) After a challenge ends, velocity can make a call to create a new challenge with the same parameters.

5) The invitation can be accepted at any time within the 7 days, the number of workout performed since the start time will be credited to the challenge.

6) A challenge is not expected to be changed after it is created.

[00138] Other rules, restrictions and the like may be defined and is not limited to the above example.

[00139] Head to Head: Head to Head challenges are challenges in which the participants' performances are treated individually and not grouped. The participants' performances may further be compared with one another to determine a winner.

[00140] Search Challenge: Challenge search will return a list of challenge objects based on the keyword provided. The challenge objects in the list may be a trimmed down version of the full challenge object.

[00141] Team Up: Team Up is a challenge type that may have the following rules:

1) There are at most 2 members. Other limits may be set such as 3, 5, 10, 13, 17, etc.

2) Any two (or other number of) members can have only one active team up.

3) The challenge starts when the second person (or last person) accepts.

4) The challenge ends 72 hours after the start time.

5) If the challenge hasn't started 24 hours after it is created, it expires.

6) The fuel amount is integer.

7) The challenge cannot be updated.

8) A person can have only 50 active team ups.

[00142] The Challenge Type can be:

[00143] TEAMUP BAND TOGETHER FRIEND

1) The user selects a friend from the list of friends and creates a challenge.

2) The invitation is sent to the friend.

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3) If the friend accepts the challenge the challenge becomes active.

4) Each member should reach the fuel target so the challenge can be considered completed.

[00144] TEAMUP BAND TOGETHER BLIND MATCH

1) On the blind match you select one of the preset activity point targets and proceed to create the challenge.

2) The system will match you with a random user taking the same type of challenge with the same fuel level.

3) If a match is found, the user has the right to accept or deny it.

4) If the user accepts, the start time and the end time will be updated.

5) If the user denies, both the user and the creator of the challenge are available for blind match. Basically, a separate challenge is created for the user.

Legacy API

[00145] Some services or functions may be defined to interface with legacy systems such as a legacy activity tracking and monitoring site or system.

[00146] Generate PIN Service: Retrieves a unique PIN for an empty user container.

[00147] Generate Token Service: Generates a one-time-use token with which the local software can launch a browser to a specified website or page, and automatically login the user. The token is one-time-use only as it is passed in the clear over HTTP, and therefore cannot be used to hijack a user's account.

[00148] Get PIN From Token: Get PIN from a one-time access token.

[00149] Get PIN Status Service: Provides information about the user container associated with this PIN.

[00150] Sync Complete Service: Called to tell an activity tracking application that the sync session is complete. This call may have an internal delay for 10s in order for this call to be the last in a group of activities.

Community

[00151] The multi-activity platform and system may further host a community of users seeking to track and monitor their activity levels. Communities may refer to all users registered with the system or a sub-group within the users (e.g., a group of friends, a location based group, an organization based group, age groups, device type groups, etc.).

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Accordingly, various services and functions may be provided to interact with community functionality.

[00152] Get Community Challenge Stats Totals: This service will provide the lifetime aggregations for any community/challenge type pair. For example, a user may request aggregation information for challenges of the week within the 25-49 male community. The community may be defined based on demographics, activity type, device type, age group, gender, location and the like and/or combinations thereof.

[00153] Get Community Leaderboard: This service will return the requested Community Leaderboard. This service may cause the system to calculate the Leaderboard, or may only return the leaderboard if already generated/present. In one example, if the Leaderboard has not been calculated yet, an error message will be displayed. There may be multiple types of Community Leaderboards including a Seven Day Rolling and an All Time. These two types of leaderboards can be requested for each existing type of drill.

[00154] Get Community Stats: This service will provide an aggregation of existing as well as 3 new community aggregations as described below. These are example aggregations and do not represent an exhaustive list.

[00155]

Community - Total / Average Fuel Today, Week, Month, Year, All Time.

Community - Average Activity Point Daily Goal for Device X users - Today Week, Month, Year, All Time.

Community - Total Device X Daily Goal Reached Today, Week, Month, Year, All Time.

Community - Total / Average Step: Today, This Week, This Month, This Year, All Time.

Community - Total / Average Calories: Today, This Week, This Month, This Year, All Time.

Community - Average Community Daily Goal.

[00156]

Community - Total / Average Distance Today, This Week, This Month, This Year, All Time.

Community - Total / Average Calories: Today, This Week, This Month, This Year, All Time

Community - Total # of Users for each vertical and entire community.

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[00157] Get Community Stats Frequencies: This service will provide the History aggregations for any community/activity pair for any frequency (e.g., weekly, monthly, annual, etc.).

[00158] Get Community Stats Total Users: This service will provide the real time number of community users (e.g., all users on the site or within a more specific community).

[00159] Get Community Stats Totals: This service will provide the lifetime aggregations for any community/activity pair.

[00160] Get XYZ Community Leaderboard: This service will return the requested activity XYZ Community Leaderboard. Activity XYZ may correspond to a particular type of activity or activities performed using a particular type of tracking device or devices. This service may calculate the Leaderboard or might only return a leaderboard if already present. If the Leaderboard has not been calculated yet, an error message may be displayed in some examples. There are multiple types of Community Leaderboards including Current Week and All Time. These two types of leaderboards can be requested for each existing type of drill.

[00161] Get Friend Leaderboard: This service will calculate and return the requested Friend Leaderboard. There may be multiple types of leaderboard including Friend Leaderboards, Current Week and All Time. These two types of leaderboards can be requested for each existing type of aggregation.

[00162] Get Friends Leaderboard: This service will return a Leaderboard for a specified drill that ranks the user and his/her friends only. If the user doesn't have any friends the leaderboard won't be shown.

[00163] Get Friends List All: This service allows a user to see a listing of all their friends.

[00164] Get Friends List Common: This service allows a user to see a listing of friends user has in common with another friend.

[00165] Get Friends List Most Active: This service allows a user to see a listing of the recent activity of all of a user's friends.

[00166] Get Friends List Recent Activity: This service allows a user to see a listing of most recently active friends and what they did (e.g., activities performed, devices used, locations, etc.).

[00167] Get Friends List Team Up: This service allows a user to see a listing of friends user most recently did a team up with.

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[00168] Get Activity Point Friends List Service: Returns a list of the user's friends with corresponding information on their activity points (cumulative level, daily level, daily goal.) The request specifies sorting by activity, cumulative activity point level, daily activity point level, or screen name. This service is used by applications to get a list of friends with corresponding activity point levels for a user.

[00169] Get Homepage Community Stats: Returns an object representing cumulative stats over a rolling 30 day period for the given activity type and community type.

[00170] Social Share: FACEBOOK: Post/Share content to FACEBOOK that friends can see.

[00171] Social Share: TWITTER: Post/Share content to TWITTER that friends can see.

[00172] Test end point - Trigger Community Leader board calculations: This end point is used for testing purposes to trigger the calculation of Community leaderboards. This is an asynchronous call which will always return a success message. This end point will not be mapped by APOGEE and will only be available on the staging environment. There are two types of Community Leaderboards, Seven Day Rolling and All Time. These two types of leaderboards are calculated for each existing type of drill.

Device

[00173] Different devices may have different setting or setup parameters and procedures and ways in which data is to be communicated and/or stored. Accordingly, APIs may be provided for a device to retrieve needed data and/or to submit various types of information.

[00174] Device Settings: (GET) Retrieves a user's preferences for a specific device. (POST) Updates a preference for the specified User Device. UUID represents the user device id.

[00175] Device Settings (Protocol X): Sets device settings to a particular protocol such as protocol X.

[00176] Device Setup: Explanation on how devices are implemented.

[00177] When syncing a device, a device may be required to have a serial number and type. If either of these items is not present or incorrect, the application may provide an error. If you are associating a group of devices to a user that have been synced together, then you must pass the DeviceConfigGroupId that was presented when the devices were first synced. Also if the individual device has been associated with a user, then the DeviceId may also be required to be passed. If DeviceConfigGroupId is not sent when the devices are already

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associated with a user as a group, then it considers them a new group of devices and assigns a new DeviceConfigGroupId.

[00178] Serial numbers are unique identifiers. If a device with a serial number that is already associated to a user is sent (without sending in the DeviceConfigGroupId or DeviceId), then the system may return an error. The error will state that this device's serial number is already associated to another user, even if you are that user.

[00179] A Type variable may be defined as the type of device that is being associated to the user. This variable or parameter may be required in order for a system to know what kind of device is being associated. If the device passed in has an invalid type or is empty then an error will be thrown.

[00180] Devices that have not been grouped together before are considered a new group of devices. If two devices that have already been associated with a user with a brand new device are grouped, this association may constitute a new device group. Because this represents a new group of device, a DeviceConfigGroupId is not required in the communication. The DeviceIds for the old devices that have already been associated with the user may be passed to the system. When the devices are synced, a new DeviceConfigGroupId and a new Device Id may be returned.

[00181] For a first sync for new devices: devices with an unused serial number may be sent to the system without a DeviceId or DeviceConfigGroupId. The DeviceConfigConfigId will be returned along with each DeviceId for each of the devices in the order that they were passed/communicated.

[00182] For any sync after the first with the same devices: the devices' DeviceIds and the DeviceConfigGroupId are transmitted/communicated. The same DeviceConfigGroupId will be returned back, but not the DeviceIds.

[00183] For any sync after the first sync with new devices along with old devices: DeviceIds for the old devices are communicated without DeviceIds for new devices. In some arrangements, a DeviceConfigGroupId might not be sent since this will be a new group of devices. The new DeviceConfigGroupId will be returned to be used for future syncs of these devices. The DeviceId's of the new devices will be returned also.

[00184] Phone Device Settings (Protocol X): Sets Phone device settings to a particular protocol such as protocol X. This may also allow the device to know what protocol is to be used to communicate with the multi-activity platform.

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[00185] Reset Device: Sets the User Device "delete_ind" flag to true. UUID represents the device id.

[00186] Reset LastSyncOffset and LastSyncTimestamp: Sets the device's LastSyncOffset and LastSyncTimestamp to the given values.

[00187] Retrieve, Add or Update Device: (GET) Retrieves a user device record or records. (POST/PUT) Adds or updates a user device record. UUID represents the user device id, returned in both the POST and the PUT response body.

Fitness/Workout Programs

[00188] Activity data recorded during a user's performance of a fitness or workout program may be communicated in accordance with various predefined functions and services.

[00189] Fitness: Get Pending Program Data: Retrieves all pending days in a workout program. Searches for existing workout programs by requested program ID. Returns a list of all pending days or workout sessions in the program.

[00190] Fitness: Post Program Data Capture: Adds program data into the system against a console post. If the program data already exists for the supplied program id, update the changes.

[00191] Fuel Balance Service: Retrieve the activity point balance for a user. This service is designed for experiences that need to show a user's activity point balance.

[00192] Get Activity Point Level Service: Gets the cumulative activity point level for specified time period. If no start time and end time specified the service will respond with activity points earned for a current day.

Goals - Achievements

[00193] As noted herein, users may reach achievements based on their physical activity. Achievements may be reached based on cumulative activity points, activity points for a predefined time period (e.g., less than lifetime), average activity points per time period, other metrics and the like.

[00194] Acknowledge Achievement By Achievement Id: Acknowledges that a user has seen an achievement. This service will serve as a way of indicating whether the user has triggered the 'OK/CONFIRM' on an achievement signifying that they have acknowledged the achievement. For example, once a user has acknowledged the achievement, the achievement might not be automatically displayed or provided to the user again. The user may still view or access the achievement by manually retrieving the achievement.

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[00195] Acknowledge Achievement By Activity Id: Acknowledges that a user has seen all achievements associated with an activity. This service will serve as a way of indicating whether the user has triggered the 'OK/CONFIRM' on an achievement signifying that they have acknowledged the achievement.

[00196] Add Goal Resolution: Adds a goal resolution against the supplied goal id. If the goal resolution already exists for the supplied goal id, it will not add the resolution.

[00197] Copy Goal: This service is used to copy a goal for the user based on the goal associated with goalId.

[00198] Create Goal: This service is used to create a goal for the user.

[00199] Get Achievements List: Return a list of the user's achievements.

[00200] Update and Delete Goal: Update Goal: This service is used to update a goal for the user.

[00201] Delete Goal: This service is used to delete a goal for the user.

User Registration/Initiation

[00202] The below services and functions may be used to register a user to an activity monitoring system

[00203] Link: Link existing user based on User Id (nuid) with an external network such as FACEBOOK or TWITTER.

[00204] Login: This service is used by applications to login a user to the activity monitoring service or system. On login, an oauth (e.g., authentication) access token is provided back to the calling application that can be used for further calls that need login enabled. External network name can be supplied to login using third-party authentication. The system may proxy these login requests to the appropriate external networks.

[00205] Pin Request for Access Token: Gets the API access token and refresh token based on the DIN (Device Identification Number) that is passed.

[00206] Pin Request for Imprint: Adds a device. This will create and return a DIN (Device Identification Number) for the device.

[00207] Pin Request for Is Logged In: Checks if the user is already logged in or not.

[00208] Pre Registration Check: Check if the supplied email address and system screen name are available for a new registration. This service is useful for any application about to register a user with the system. This service is invoked prior to registration to check if the

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email address, screen name/tag name, dobType and dob, and locale already available with the application can be used to register the user with the system.

[00209] Register: Register user with the supplied information. This service is used by applications to register a user with the activity system.

[00210] Token Request Service: This service might only be called by a software application to get a one-time token during the initiation/imprint flow with a DIN (Device Identification Number).

[00211] User Initiation Statistics: Returns initiation statistics if the initiation period has not ended; returns initiation result if the initiation period has ended. The initiation period may be, for example, a first 24 hours in which the user is to perform an average day's worth of activity. During the initiation period, this service will respond with the current metrics or statistics of user activity. After the initiation period, this service will respond with the final metrics or statistics accumulated during the initiation period. In a particular example, when the service is called, a start_time_local parameter is loaded, and the end time of initiation period is calculated. The end time is then checked against the current time to determine if we are still in the initiation period. If so, the values of relevant columns (e.g., requested activity metrics) are returned along with a status code 1. If the initiation period has ended, check SYNC_DATE (e.g., a date when data was last synchronized) with the end time. If SYNC_DATE is past the end time, indicating data for the initiation period is up to date and ready, the status code is set to 0. Otherwise the status code is set to 2. Additionally, the values of relevant columns are returned. Below is an example table of status codes.

Status	Description
0	All the values are ready
1	The initiation is in progress
2	The initiation period has ended, but not all the values are ready

Activity Service Layer

[00212] Interfaces for the activity service layer may be used to handle all login, registration and social network/community integration.

[00213] Activity List Service: Get activity List back based on the type passed in.

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[00214] Create User Service: Creates a new user through the activity monitoring system or third party provider. User gets automatically logged in after registering a user successfully. During third party login, the newly-created UPM id will be fed into the third party provider. Additionally "partner" parameters can be passed in to set partner network settings to be attached to the user. This creates another network entry for a "Partner" with the network name as specified in the service call, the unique id of that user and the screen name.

[00215] If the user is passing "Partner" parameters to store for the user the following fields are required in order for the partner information to be saved. Partner data not saving might not prevent the service from continuing normally.

- partnerGuid
- partnerNetwork
- partnerScreenName

[00216] Crop Profile Image of a User: Crops and uploads the profile image of a user to permanent location

[00217] Delete Profile Image of a User: Deletes the profile image of a user (soft delete)

[00218] Email Content Service: This service gets the content of an email based on app, locale, type. The user sends in the number of invitation links to be created. The service implementation will get the content for a friend invitation from a specific user and a list of links (i.e specified by the count).

[00219] External Network Friend List Service: Get a list of the user's friends in an external network. Mutual friends can be excluded from the list if an additional parameter is passed in with the request.

[00220] External Network List Service: Returns the list of external networks supported by the activity monitoring service.

[00221] External Network User Check Service: This service checks to see if an external network user already exists in the system or not. This service will perform the following based on the value of action:

1. Given an external network user's unique ID, e.g., FACEBOOK user ID, the service may return an UPM ID if the user exists in the system and is linked to the external network user.

2. If there is no record found, then the service may try to match based on email provided by the caller. If there is a matching email, the service will link the external network

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user record with the existing UPM record with a new link type and return the upm id. Additionally the service will also setup the user to login using, e.g., FACEBOOK OAuth token or FACEBOOK credentials (email/pwd registered with FACEBOOK).

3. If the above two checks do not result in a match, create a new email only user with the information provided by the caller and link it to the external network.

- action = check --> point 1 above
- action = link --> points 1 and 2 above
- action = createAndLink --> all of the above

[00222] Friend Create Service: Sends a friend request invitation to another user, or accepts a pending one.

[00223] Friend External Create Service: Sends a friend request invitation to any external user (not a user of the activity monitoring service) via email.

[00224] Get User Security Status Service: Retrieves a user's security status based on the cookie sent and returns the user's security level. The security level is retrieved from the slCheck cookie and the AnalysisUserId cookie, depending on whether or not the user is logged in.

[00225] Get User Service: Returns core User profile data. User data is held in UPM service and this service provides a single view into user profile. It will also return the extended User profile information from social site. If this is called anonymously, a limited subset of data will be returned based on the requested user's privacy status.

[00226] Is Logged In Service: Checks if the current user is logged in and returns security level of user if user is logged in. It is necessary for a user to be logged in in order to use the NSL services.

[00227] Login Service: Authenticates the user credentials to allow the user to login. A user can choose to login using their system credentials or credentials registered with any other external networks like Facebook, Twitter, etc. An activity monitoring service uses the User Profile Management (UPM) service to register and maintain a user profile. It may also use any authentication provider like Facebook, Twitter (hereafter referred to as 3PP or third party providers or external network). On successful login, it provides authorization cookies required to make subsequent calls to NSL.

[00228] An additional useful feature is "remember me". It is sent as an optional parameter in the login request. This will allow the user to be logged in until he/she explicitly signs out of the application. Currently, the duration of validity for "remember me" is set as 30 days.

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[00229] Also a user may login using oAuth access token when the user is already linked to some external network. Along with their credentials, users can send partner network information and it will be stored in the database. This information is not validated by NSL. When a user passes in "Partner" parameters, the partner's network settings will be attached to the user. This in turn creates a new network entry for that "Partner" with the network name as specified in the service call.

[00230] Logout Service: Logs the user out from the NSL.

[00231] Mark as Read Notification Service: Sets a specified notification's status to 'read'.

[00232] Team Activity List Service: Get team activity List back. Team activities can be filtered based on titleId or app or both.

[00233] Upload Profile Image of a User: Uploads the profile image of a user to temporary location

[00234] User Activity List Service: Get user activity List back based on the filter criteria passed in. User activities can be filtered based on titleId or app or both. This service also returns activities of any user based on the userId passed in.

[00235] User Email Check: This service checks if the email has already been used in creating an account. Since email is an unique identifier, there cannot be multiple users registered with the same email.

[00236] User External Network Link: This service will link the FB/Twitter/other external network login with the existing account. This service will also allow linking through another Social Network.

[00237] User Forgot Password: This service helps the user reset their passwords. The service will accept an email and check that a user exists with that email address and sends to that address a temporary password reset URL email. The email contains a unique one time use reset key. The user's password is not reset until the user actually uses the reset key to reset the password meaning the act of sending a password reset email alone will not reset the user's password.

[00238] User Friend Activity List Service: Get user's friends activity List back based on the filter criteria passed in. User's friend activities can be filtered based on titleId or app or both. This service also returns activities of any user's friend based on the userId passed in.

[00239] User Friend List Service: Get User Friend List along with friends basic details.

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[00240] User Friends Match Service: Gets user email details (passed by the caller of the service) if that email matches/exists in the system. Mutual friends can be excluded from this list if an additional parameter is passed in with the request.

[00241] User Screen Name Check: This service checks if the screen name the user is intending to take already exists or not. Since a screen name is a unique identifier there cannot be multiple users with the same screen name.

[00242] User Search: Searches for a user based on a searchstring passed in.

[00243] User Workout Cheer List Service: This service returns all the cheers (likes and comments) posted for a user's workout from an external social network (Facebook).

[00244] User Workout Create Service: Create a user Workout. Multiple workouts can be created (maximum 10).

[00245] User Workout Finish Service: This service lets a user post a message to an external social network (ex. Facebook) indicating the finish of their Workout and their desire to have friends cheer them on.

[00246] User Workout List Service: Get the list of user workouts.

[00247] User Workout Start Service: This service lets a user post a message to an external social network (Facebook) that indicates the start of their Workout and their desire to have friends cheer them on.

Synchronization

[00248] Synchronization between an activity monitoring device, a multi-activity platform system and/or an application may be facilitated through the following APIs.

[00249] Get Server Time: Get the current GMT time of the multi-activity platform servers.

[00250] Last Date and Time Sync Service: Returns the date and time of the last sync based on the AppId (e.g., an application identifier). This service is useful for any application/device that needs to know the last time when the device synchronization occurred and know if there are new items to synchronize.

[00251] Last Sync LSO (Last Sync Offset) and LSTS (Last Sync Timestamp) - This service is used to get the last LSO (Last Sync Offset) and LSTS (Last Sync Timestamp) back as user does a sync on the device.

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[00252] Last Sync Service: This service is to get the last sync details. User login and get the last sync detail by hitting the endpoint. This service is used to get the last sync delta back as user does a sync on the device.

[00253] Sync Service (Basketball): Syncs basketball user activities to an activity monitoring service back end.

[00254] Sync Service (Device X): This service is useful for any application wishing to sync user's activities between a particular device such as Device X and an activity monitoring service back end. The actual metrics being synced will have to be negotiated with the activity monitoring service for an optimal user experience.

[00255] Sync Service (Running): Syncs running user activities to an activity monitoring service back end. This service is useful for any application wishing to sync user's activities to an activity monitoring service backend. The actual metrics being synced will have to be negotiated with activity monitoring service for optimal User experience.

[00256] Sync Service (Device Y): Syncs user activities between another particular device such as Device Y to an activity monitoring service back end.

[00257] Sync Service (Training): Syncs training user activities to an activity monitoring service backend.

[00258] Sync Service (Fitness/Workouts): Syncs fitness/workout program user activities to an activity monitoring service backend.

[00259] Sync Service v2.0: Syncs user activities to an activity monitoring service back end.

[00260] Sync Status: Get the status of the recent sync activity, indicating if the back end processing is complete.

User-Oriented Information, Events and Settings

[00261] Various services and functions may be defined for defining, configuring, sharing and retrieving user profile information. Additionally, user events may be communicated using various API services. User events may include reaching activity goals, reaching various activity achievements, warnings messages, workout reminders, other alerts and the like.

[00262] Create Event Service: Send a user event to the event service. This service is useful for any application wishing to send a user event to be displayed on a user's home page or landing page of his or her account.

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[00263] Delete Event Service: Send a user event to the event service. This service is useful for any application wishing to send and delete a user event to be displayed on a user's home page or landing page of his or her account.

[00264] Delete User Data: This perform a hard-delete of user data. Cache data will also be cleared. Response should be success or failure. For example, user data on any number of protocol-compliant devices including a multi-activity system, an activity monitoring device, an intermediary device and the like may be deleted in this manner.

[00265] Get and Update Privacy: Get information about the authenticated user's privacy settings. Update the authenticated user's privacy settings. Any user that uses the multi-activity platform has a profile in the multi-activity system. The GET version of this service returns the profile privacy setting associated with the authenticated user.

[00266] Get Athlete Information: Return information about an athlete.

[00267] Get Drill: Return the drill information.

[00268] Get Drill Metadata: This service will be used periodically to get drill metadata from the multi-activity system. The drill metadata is a list of prepared drills and their associated properties.

[00269] Get Friends Me Profile: Get information about the authenticated user's friend's ME profile. Any user that uses the multi-activity platform has a profile in the multi-activity system. The GET version of this service returns all the profile information associated with the authenticated user. The "Friend's" upmId should be passed through the url.

[00270] Get Insights: Get a list of insights on a user, based on a rule based system. It is possible that no insights are returned. Insights may include recommendations for the user, identification of areas for improvement, words of encouragement and the like.

[00271] Get Me Profile: Get information about the authenticated user's ME profile. Any user that uses the multi-activity platform has a profile in the multi-activity system. The GET version of this service returns all the profile information associated with the authenticated user.

[00272] Get Me Profile Basketball: Get basketball information about the authenticated user's ME profile. Any user that uses the multi-activity platform has a profile in the multi-activity system. The GET version of this service returns all the profile information associated with the authenticated user.

[00273] Get Me Profile Training: Get training information about the authenticated user's ME profile. Any user that uses the multi-activity platform has a profile in the multi-activity

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system. The GET version of this service returns all the profile information associated with the authenticated user.

[00274] Get Me Profile User Header: Get information about the authenticated user's Header information. The GET version of this service returns all the profile information associated with the authenticated user.

[00275] Get Mobile App Summary: Returns the user's profile data, lifetime totals, achievements, and last 30 activities for the appid given in the request header. For example, different application may be configured to consume or detect different activities. Accordingly, only those activities consumable by the application identified by the appid may be returned.

[00276] Get Multi-Activity Profile: Get information about the authenticated user's multi-activity profile. Any user that uses the multi-activity platform has a profile in multi-activity system. The GET version of this service returns all the profile information associated with the authenticated user across all verticals. If a specific mobile application (for example Basketball) is calling the multi-activity profile, then the calling application's specific records are returned in the response. In some arrangements, the sorting of the returned records must be done by the calling application.

[00277] Get Profile and Update Profile: Get information about the authenticated user's profile. Update the profile of the authenticated user. The PUT version of this service will update the profile with the provided information. If an item is included in the request body, the value of the item will be updated; if the value is null, the item will be removed. If an item is not included in the request body, it will be ignored. However, if the item is required, an error will be thrown. This service might not update a UPM database. The GET version of this service returns all the profile information associated with the authenticated user.

[00278] Get Trainers and Athletes Metadata Information: Return the list of all athletes/trainers/celebs along with their details.

[00279] Initial Assessment: Login the user into the multi-activity system.

[00280] List Athletes: Return a list of athletes.

[00281] List Drills: Returns a list of drills.

[00282] Post Athlete Information: Post athletes' information to multi-activity system back end.

[00283] Post Drill Information: Post information about a drill to the multi-activity system backend.

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[00284] Update Event Service: Send a user event to the event service. This service is useful for any application wishing to send and update a user event to be displayed on the home page.

Utilities

[00285] Cache Clearing Service: Clears the specified cache.

[00286] Cache Refresh Service: Posts a request to refresh the cache with a specific entity.

[00287] Event Service: Creates/Updates/Deletes an event to the Unified Event Stream (UES).

[00288] Activity Multiplier Service: Retrieve the fuel multiplier for a given fuel source.

[00289] Get Calendar: Return list of user events & user goals to be displayed on the Calendar.

[00290] Get Notifications: This service is used to get notifications. The GET returns a list of notifications based upon the request type.

[00291] List Supported External Networks: Return a list of supported networks for login to the activity monitoring service/community. The activity monitoring service/community itself may be returned as a possible network that can be used for login. Image formats can be returned in either JPG or PNG format.

[00292] List Supported Locales: Returns a list of supported locales and corresponding age limits for login to the activity monitoring system/service. This service is useful for any application wishing to pass locale information during registration, to query and obtain the list of locales supported by the system/service and the corresponding age limits.

[00293] Manual Share: Retrieves a Manual Share record of a user.

[00294] Notification Preferences 1.0: (POST) This service is used to add the notification preferences of a user to the activity monitoring system/service. (GET) This service is used to get the notification preferences of a user.

[00295] Notification Preferences 2.0: (POST) This service is used to add the notification preferences of a user to the activity monitoring system/service. (GET) This service is used to get the notification preferences of a user.

[00296] Refresh Device Token 1.0: When an application (e.g., a mobile application) wants to use push notifications, it must call this service every time it is opened in order to keep the device token assigned by the mobile device (which can change over time) up to date on the backend.

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[00297]

[00298] Refresh Device Token 2.0: When an application wants to use push notifications, it must call this service every time it is opened in order to keep the device token assigned by the mobile device (which can change over time) up to date on the backend.

[00299]

[00300] Remove Device Token 1.0: When a smart phone (e.g., iPhone) application turns off push notifications or unlinks the user account on the device, it must call this service to remove the record of that device token from the backend.

[00301] Remove Device Token 2.0: When a smart phone (e.g., iPhone) application turns off push notifications or unlinks the user account on the device, it must call this service to remove the record of that device token from the backend.

[00302] Server Time Request: Get the current GMT time of the muti-activity servers.

[00303] Time Zone Ids: Gets a list of valid time zone ids.

Conclusion

[00304] While many of the aspects and features described herein relate to activity, similar processes, functions, systems and the like may be applied to inactivity. For example, a monitoring device may be configured to detect inactivity and such information may also be synchronized or otherwise transmitted to a multi-activity platform and system to affect a user's activity level and profile. In some examples, inactivity may be determined by the multi-activity platform and system to determine an amount of activity points that are to be deducted as a result of the inactivity.

[00305] Additionally, while the invention has been described with respect to specific examples including presently preferred modes of carrying out the invention, those skilled in the art will appreciate that there are numerous variations and permutations of the above described systems and methods. For example, various aspects of the invention may be used in different combinations and various different subcombinations of aspects of the invention may be used together in a single system or method without departing from the invention. In one example, software and applications described herein may be embodied as computer readable instructions stored in computer readable media. Also, various elements, components, and/or steps described above may be changed, changed in order, omitted, and/or additional elements, components, and/or steps may be added without departing from this invention.

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What is claimed is:

1. A system comprising:

a processor; and

memory storing computer readable instructions that, when executed, cause the system to:

provide an application interface configured to facilitate uploading and downloading of physical activity data, wherein the application interface includes one or more functions configured to be invoked for a plurality of types of activity monitoring devices used by a user and for a plurality of types of physical activity performed by the user;

receive physical activity data, wherein the received physical activity data includes at least one of: physical activity data from a plurality of types of activity monitoring devices and physical activity data for a plurality of types of physical activity;

store the physical activity data including categorizing the received physical activity data based on at least one of: type of activity monitoring device used and type of physical activity performed;

providing a visualization of the received physical activity data, wherein different visualizations are provided depending on the at least one of the type of activity monitoring device used and the type of physical activity performed;

determine a number of activity points earned by the user based on the received physical activity data; and

determine whether the user has reached an activity point goal.

2. The system of claim 1, wherein the system is further caused to:

generate a first set of metrics for a first portion of the received physical activity data, wherein the first portion of the received physical activity data corresponds to at least one of: a first type of physical activity and a first type of activity monitoring device; and

generate a second set of metrics for a second portion of the received physical activity data, wherein the second portion of the received physical activity data corresponds to at least one of: a second type of physical activity and a second type of activity monitoring device,

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wherein the first set of metrics includes at least one activity metric not included in the second set of metrics.

3. The system of claim 1, wherein the system is further caused to:

determine a first type of activity associated with a first portion of the received physical activity data;

determine a first predefined set of activity tags used for the first type of activity; and

process the first portion of the received physical activity data to extract one or more values for the first predefined set of activity tags.

4. The system of claim 3, wherein the system is further caused to:

determine a second type of activity associated with a second portion of the received physical activity data;

determine a second predefined set of activity tags used for the second type of activity; and

process the second portion of the received physical activity data to extract one or more values for the second predefined set of activity tags.

5. The system of claim 1, wherein the system is further caused to categorize the determined number of activity points based on the at least one of: type of activity monitoring device used and type of physical activity performed.

6. The system of claim 1, wherein the system is further caused to determine whether the user has achieved a streak of two or more consecutive goal time periods in which a corresponding activity point goal has been reached.

7. The system of claim 6, wherein the system is further caused to recommend at least one of a product and an athletic activity based on the received physical activity data.

8. The system of claim 7, wherein recommending the at least one of the product and the athletic activity includes:

determining one or more types of athletic activity performed or one or more types of activity monitoring devices used based on the received physical activity data; and

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determining a frequency of performance of the one or more types of athletic activity performed or a frequency of use of the one or more types of activity monitoring devices.

9. The system of claim 1, wherein the system is further caused to:

process a challenge between a first user and a second user;

receive a first set of physical activity data from the first user, the first set of physical activity data is characterized by at least one of: being recorded using a first type of activity monitoring device and resulting from a first type of physical activity;

receive a second set of physical activity data from the second user, the second set of physical activity data is characterized by at least one of: being recorded using a second type of activity monitoring device and resulting from a second type of physical activity; and

determine a winner of the challenge based on the first and second sets of physical activity data.

10. The system of claim 9, wherein determining the winner includes normalizing the first and second sets of physical activity data.

11. The system of claim 1, wherein storing the physical activity data further includes:

storing a first portion of the physical activity data corresponding to at least one of: a first type of activity monitoring device and a first type of physical activity performed in a first storage area;

storing a second portion of the physical activity data corresponding to at least one of: a second type of activity monitoring device and a first second of physical activity performed in a second storage area; and

storing a first synchronization offset for the first storage area and a second synchronization offset for the second storage area, wherein the first and second synchronization offsets specify a respective point at which synchronization of the respective first and second portions of the physical activity data is to begin.

12. The system of claim 11, wherein the system is further caused to:

store a third synchronization offset for the first storage area; and

store a fourth synchronization offset for the second storage area,

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wherein the third and synchronization offsets are configured to specify a synchronization point for a first device while the first and second synchronization offsets are configured to specify their respective synchronization points for a second device.

13. The system of claim 1, wherein the one or more functions of the application interface includes a function having an activity type as a parameter and that is configured to provide data specific to the activity type.

14. The system of claim 13, wherein the function having the activity type as a parameter is configured to return a list of activity sessions corresponding to the activity type.

15. The system of claim 1, wherein the one or more functions of the application interface includes a function having an activity monitoring device type as a parameter and that is configured to provide data specific to the activity monitoring device type.

16. The system of claim 1, wherein the one or more functions of the application interface includes a function having a demographic parameter, wherein the function is configured to provide activity data specific to a group of individuals matching the demographic parameter.

17. The system of claim 16, wherein the activity data specific to the group of individuals includes a number of challenges completed by the group of individuals over a specified time period.

18. An apparatus comprising:

a processor; and

memory operatively coupled to the processor and storing computer readable instructions that, when executed, cause the apparatus to:

receive physical activity data, wherein the received physical activity data includes at least one of: physical activity data from a plurality of types of activity monitoring devices and physical activity data for a plurality of types of physical activity;

store the physical activity data including categorizing the received physical activity data based on at least one of: a type of activity monitoring device used and a type of physical activity performed;

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store a first synchronization offset for a first portion of the physical activity data corresponding to at least one of: a first type of activity monitoring device used and a first type of physical activity performed; and

store a second synchronization offset for a second portion of the physical activity data corresponding to at least one of: a second type of activity monitoring device used and a second type of physical activity performed,

wherein the first and second synchronization offsets specify a respective point at which synchronization of the respective first and second portions of the physical activity data is to begin.

19. The apparatus of claim 18, wherein the apparatus is further caused to:

store a third synchronization offset for the first portion of the physical activity data; and

store a fourth synchronization for the second portion of the physical activity data,

wherein the third and synchronization offsets are configured to specify a synchronization point for a first device while the first and second synchronization offsets are configured to specify their respective synchronization points for a second device.

20. The apparatus of claim 18, wherein the apparatus is further caused to:

store a third synchronization offset for the first portion of the physical activity data; and

store a fourth synchronization offset for the second portion of the physical activity data,

wherein the third and synchronization offsets are configured to specify a synchronization point for a first device type while the first and second synchronization offsets are configured to specify their respective synchronization points for a second device type.

21. The apparatus of claim 20, further comprising:

synchronizing the second portion of the physical activity data with a device of the second device type; and

updating the second synchronization offset without modifying the fourth synchronization offset.

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22. The apparatus of claim 20, wherein the first portion of the physical activity data corresponds to data recorded using a first type of activity monitoring device, and

wherein the second portion of the physical activity data corresponds to data recorded using a second type of activity monitoring device.

23. The apparatus of claim 20, wherein the first portion of the physical activity data corresponds to a first type of physical activity, and

wherein the second portion of the physical activity data corresponds to data recorded using a second type of physical activity.

24. An apparatus comprising:

a processor; and

memory operatively coupled to the processor and storing computer readable instructions that, when executed, cause the apparatus to:

define a first data offset for synchronizing physical activity data with a first device;

define a second data offset for synchronizing the physical activity data with a second device, wherein the first data offset is different from the second data offset;

receive an instruction to synchronize data with the first device;

synchronize at least a portion of the physical activity data with the first device; and

update the first data offset upon synchronizing the data with the first device.

25. The apparatus of claim 24, wherein the apparatus is further caused to:

determine whether the first data offset is greater than the second data offset; and

in response to determining that the first data offset is greater than the second data offset, update the second data offset to equal the first data offset,

otherwise, maintaining the second data offset without modification.

26. The apparatus of claim 24, wherein the first data offset is updated without modifying the second data offset.

27. The apparatus of claim 24, wherein the apparatus is further caused to:

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determine that the first device has synchronized the at least a portion of the physical activity data with the second device; and

in response to determining that the first device has synchronized the at least a portion of the physical activity data with the second device, update the second data offset.

28. The apparatus of claim 27, wherein updating the second data offset includes updating the second data offset to equal the first data offset.

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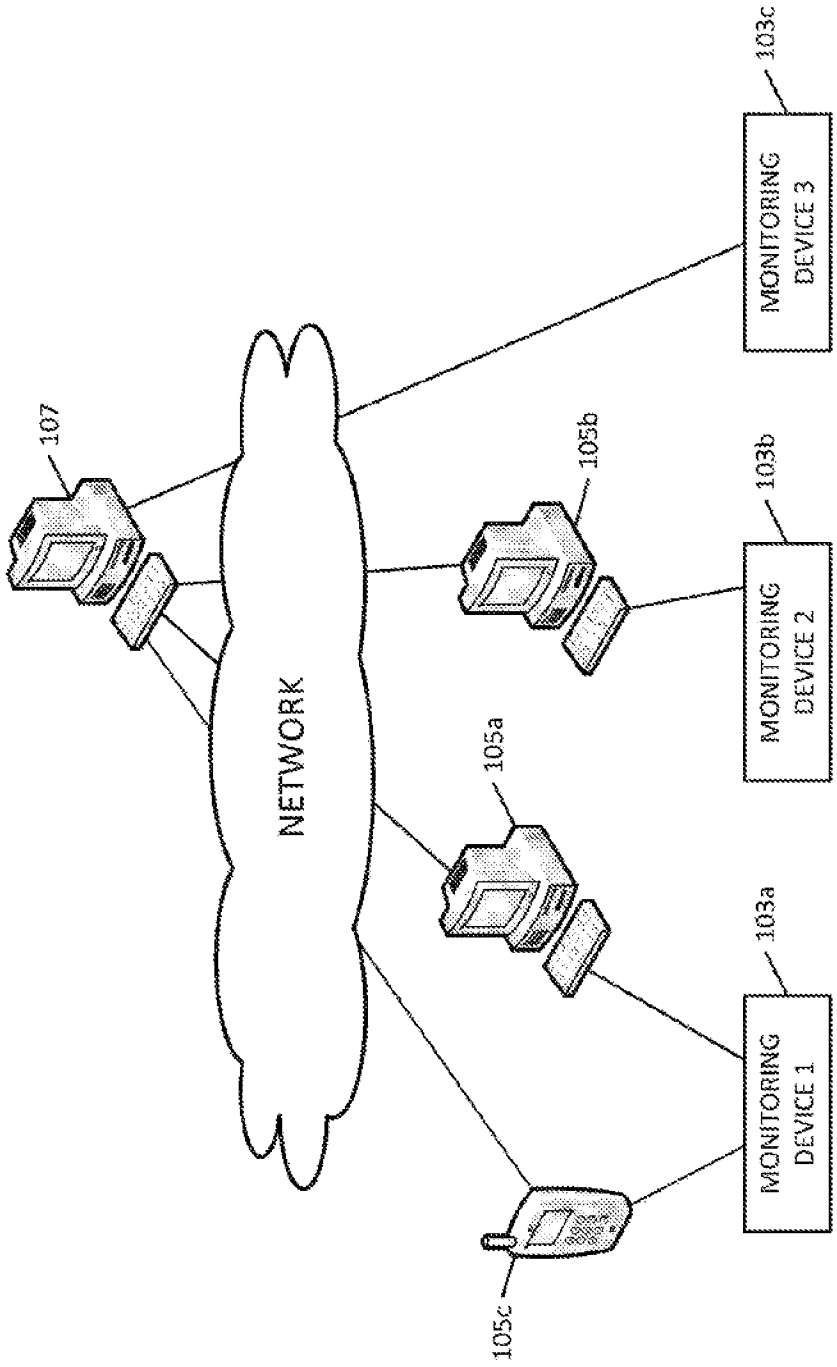


FIG. 1

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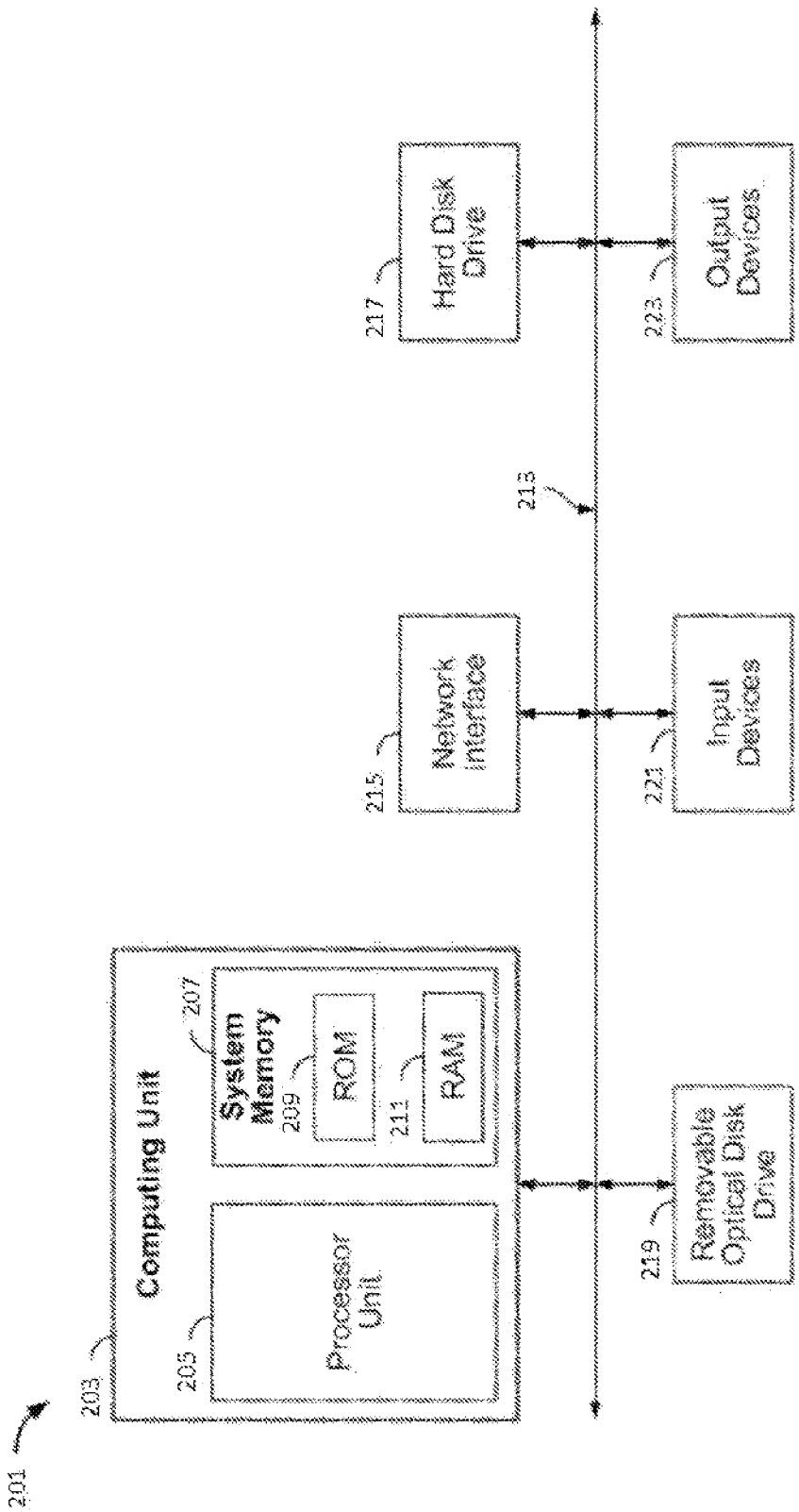


FIG. 2

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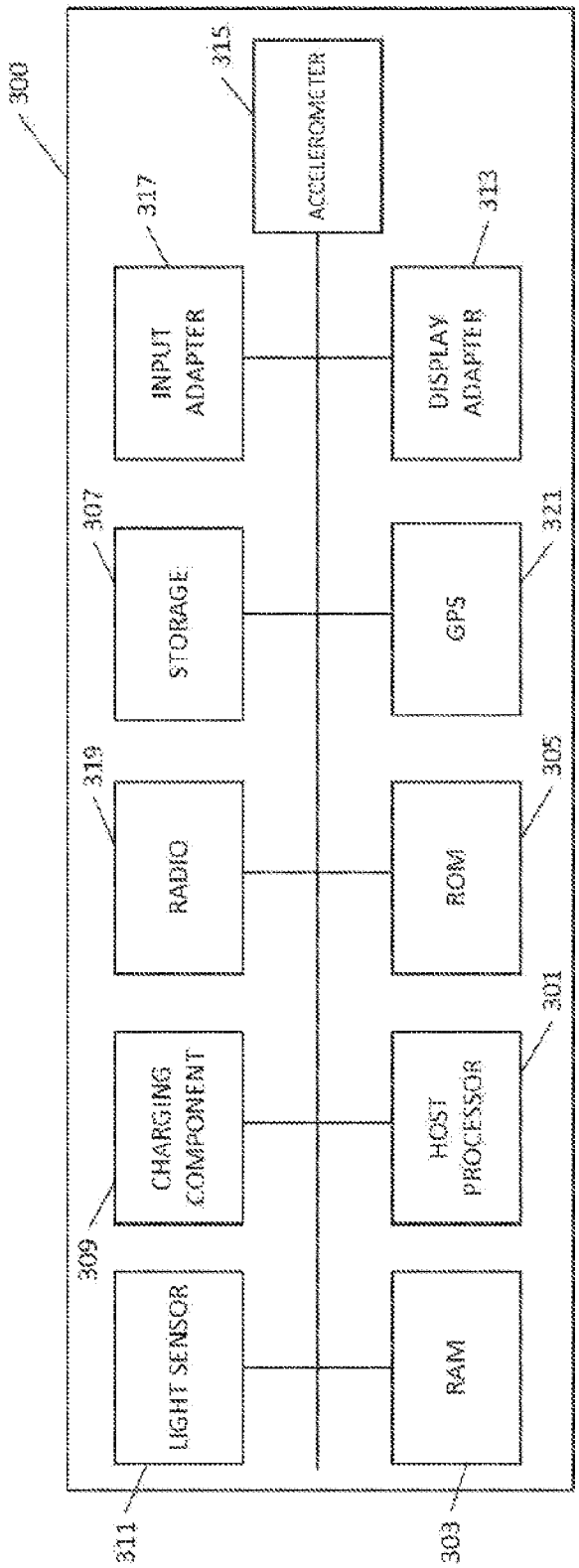


FIG. 3

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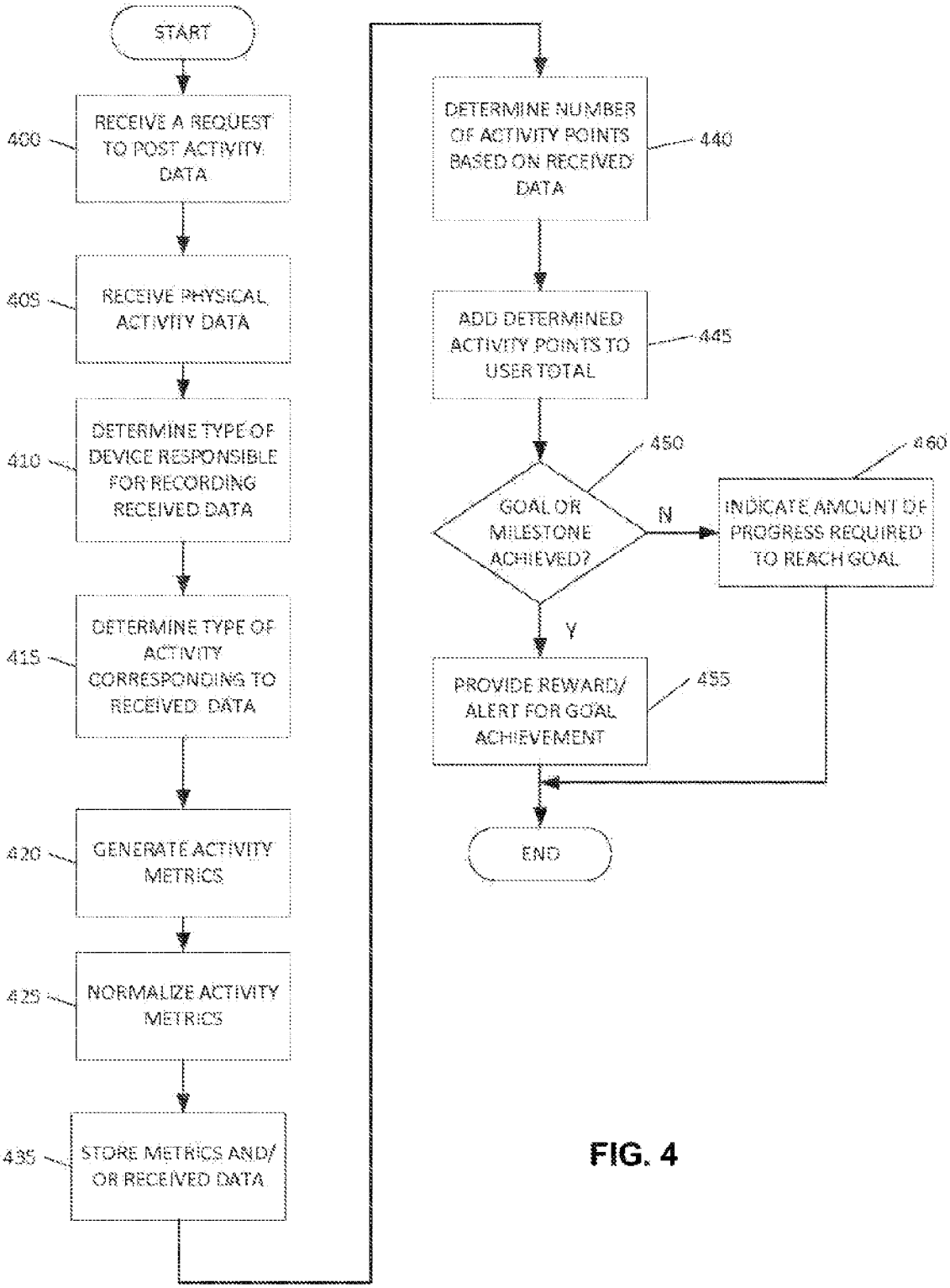


FIG. 4

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FIG. 5A

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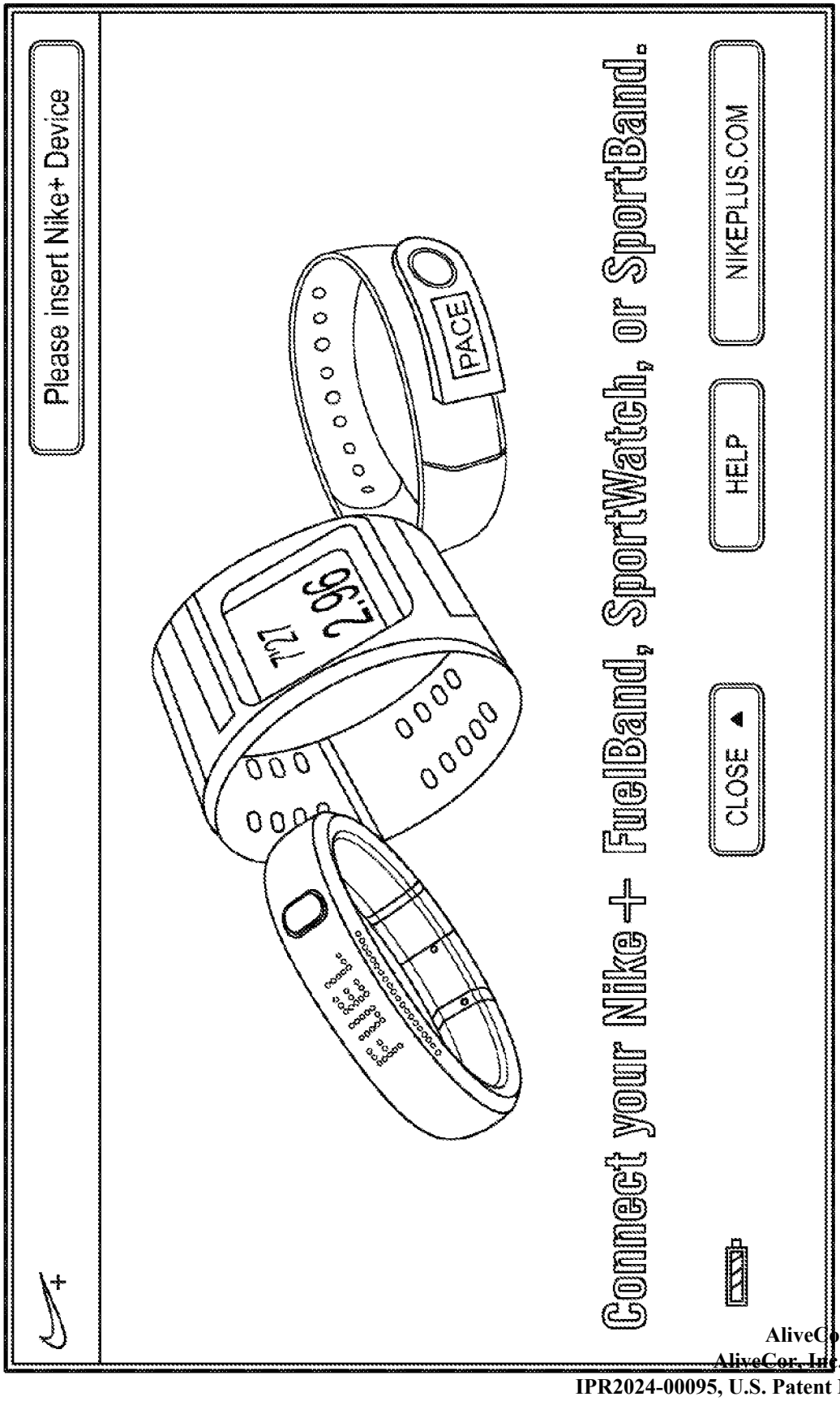


FIG. 5B

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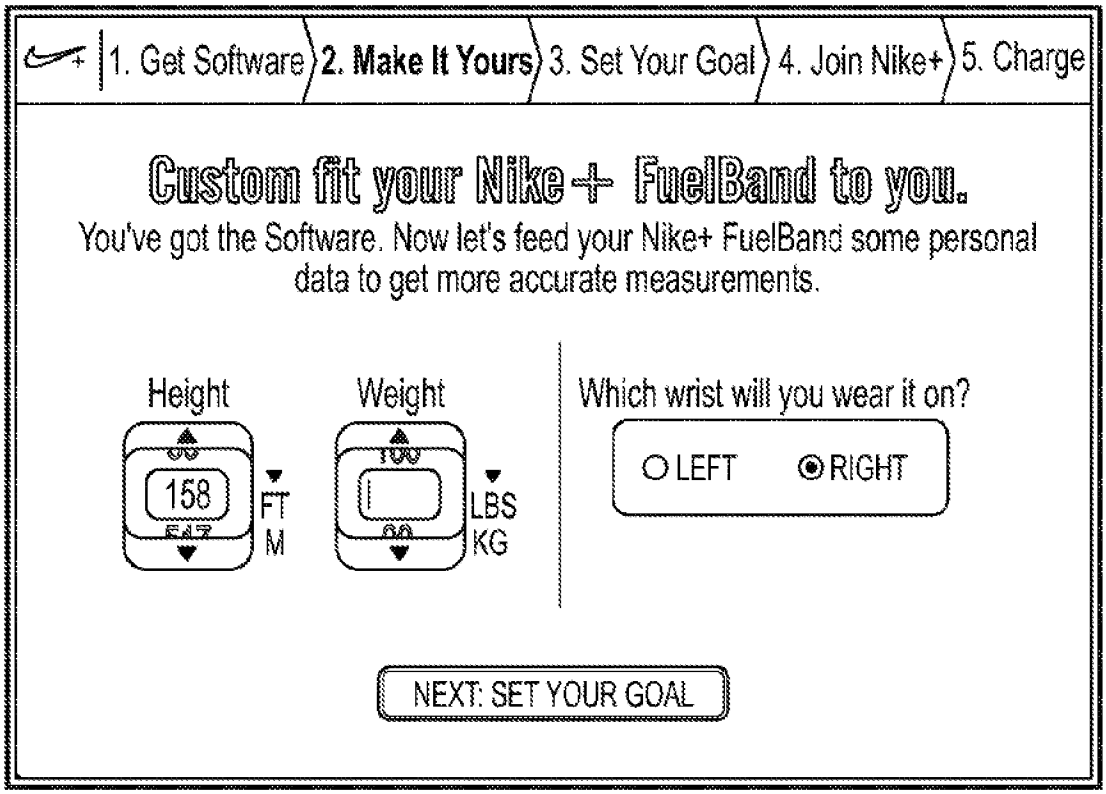


FIG. 5C



FIG. 5D

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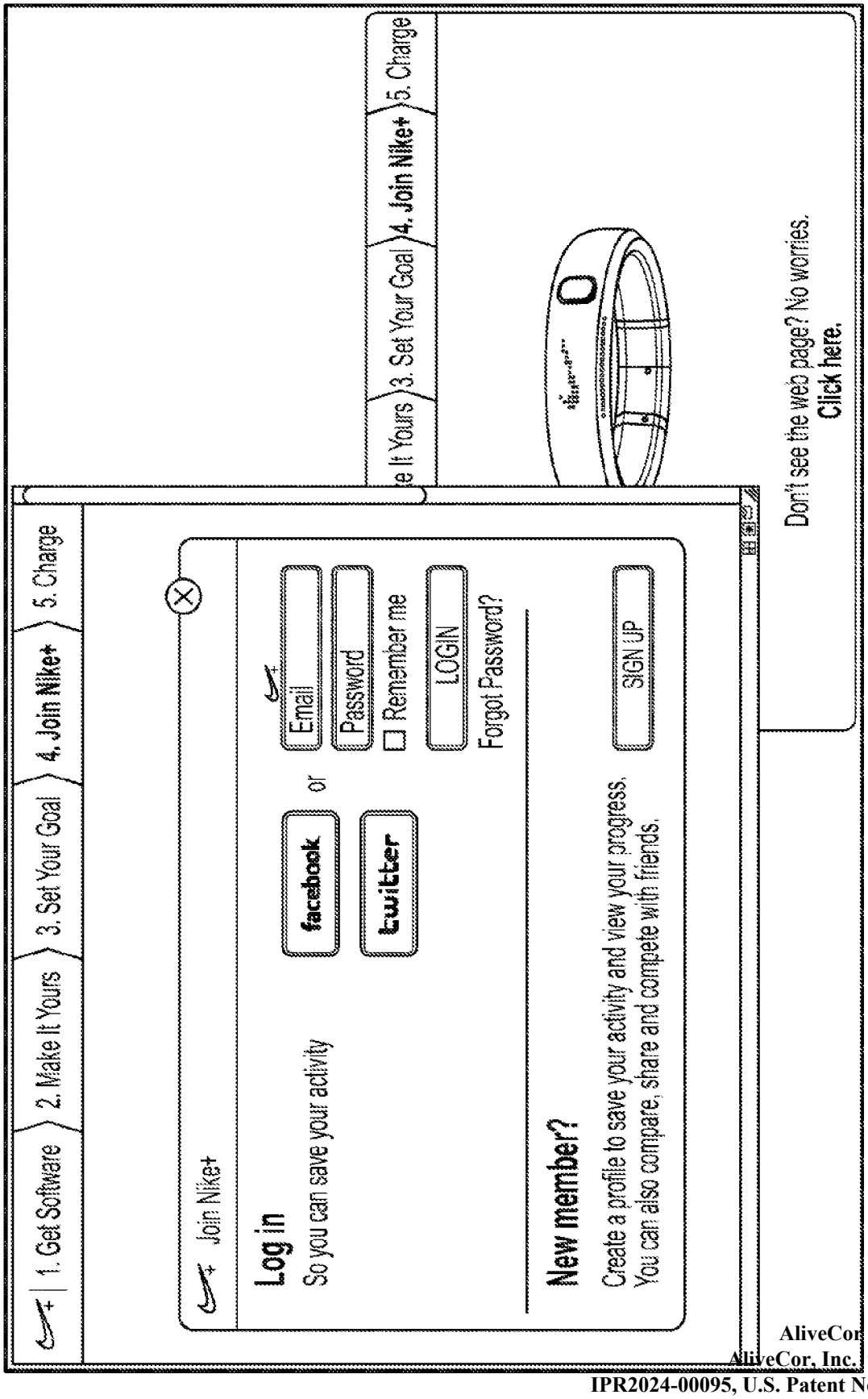


FIG. 5E

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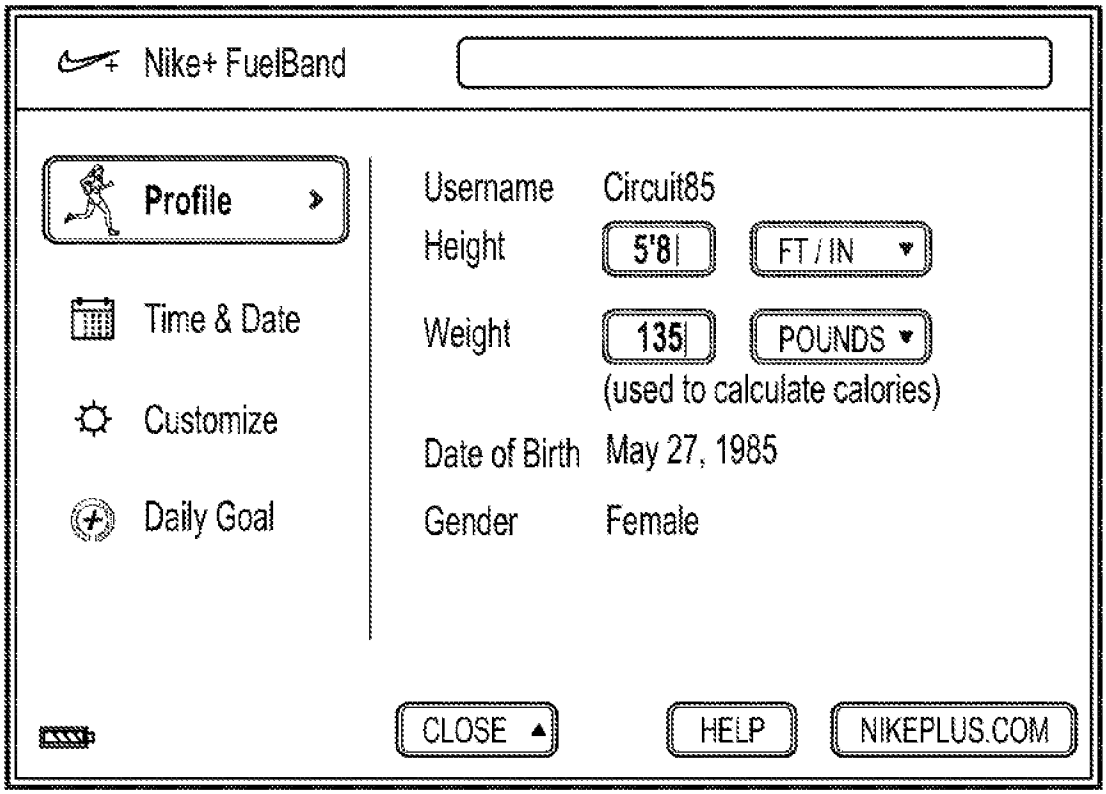


FIG. 5F

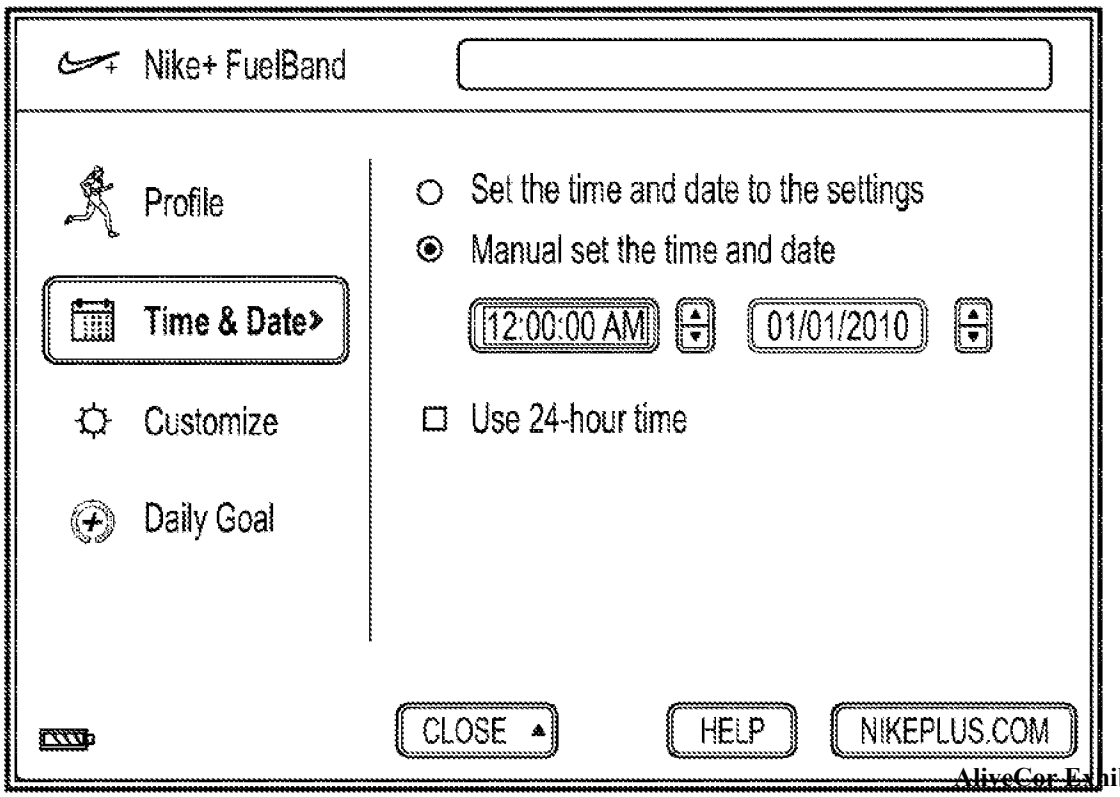


FIG. 5G

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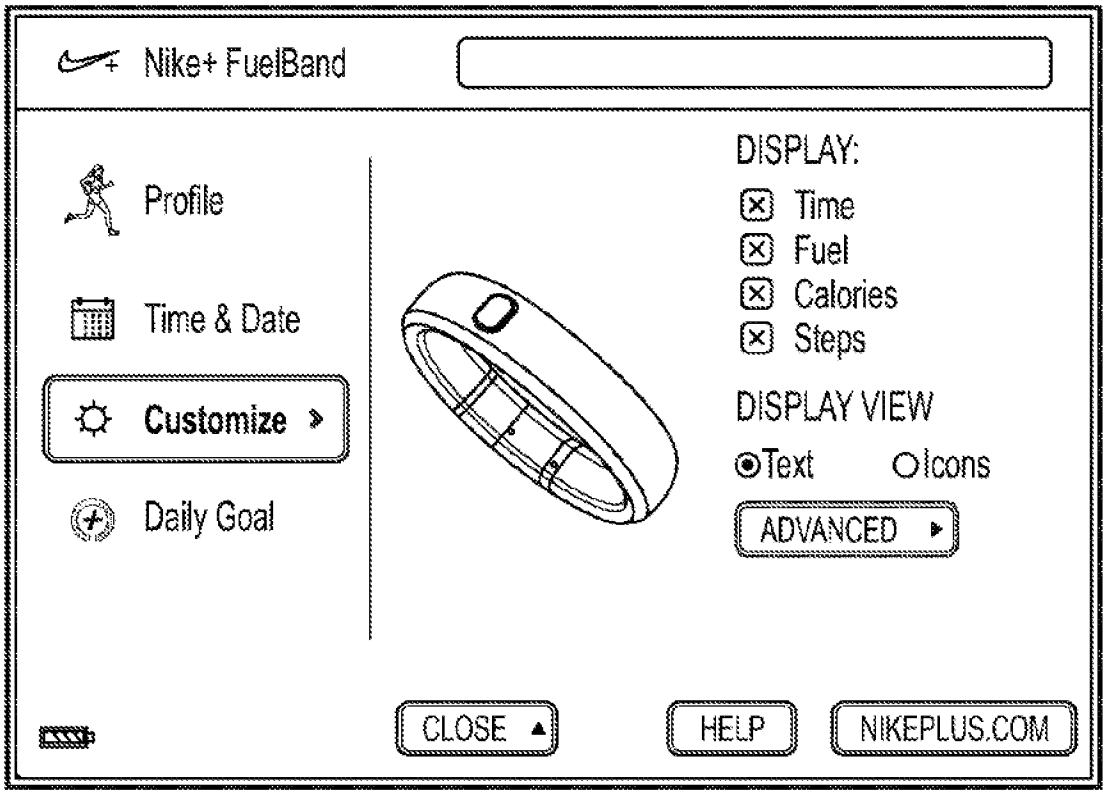


FIG. 5H

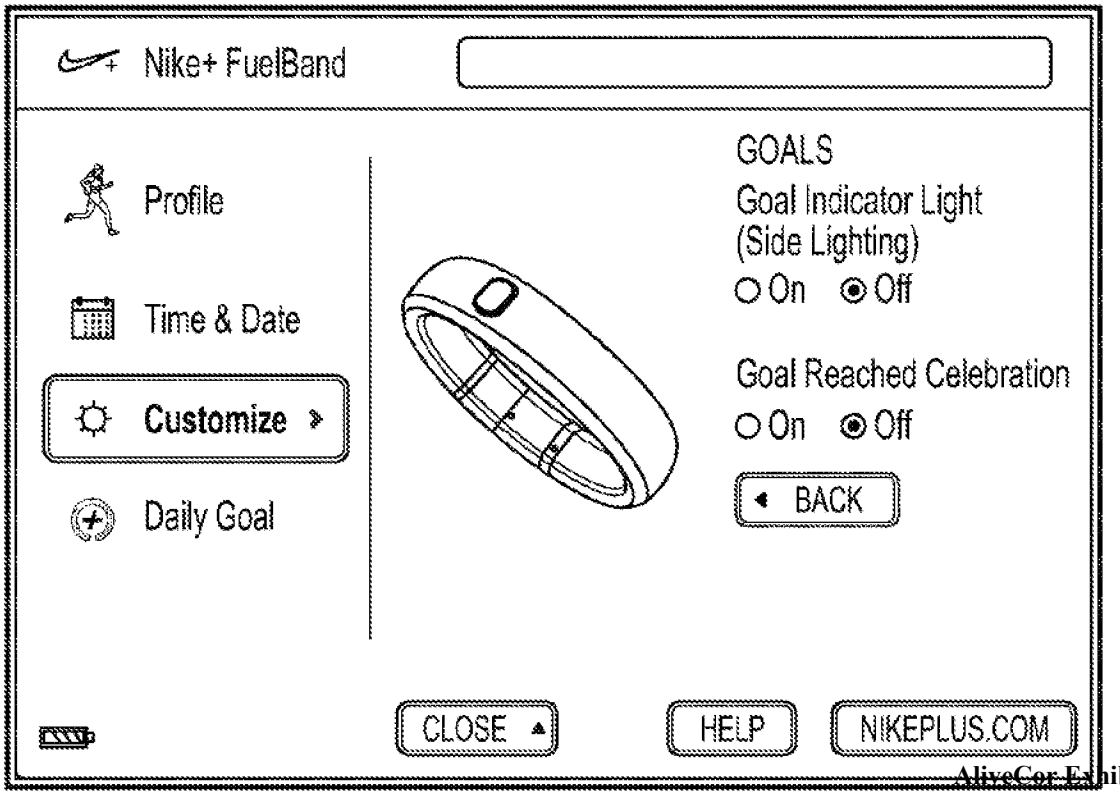


FIG. 5I

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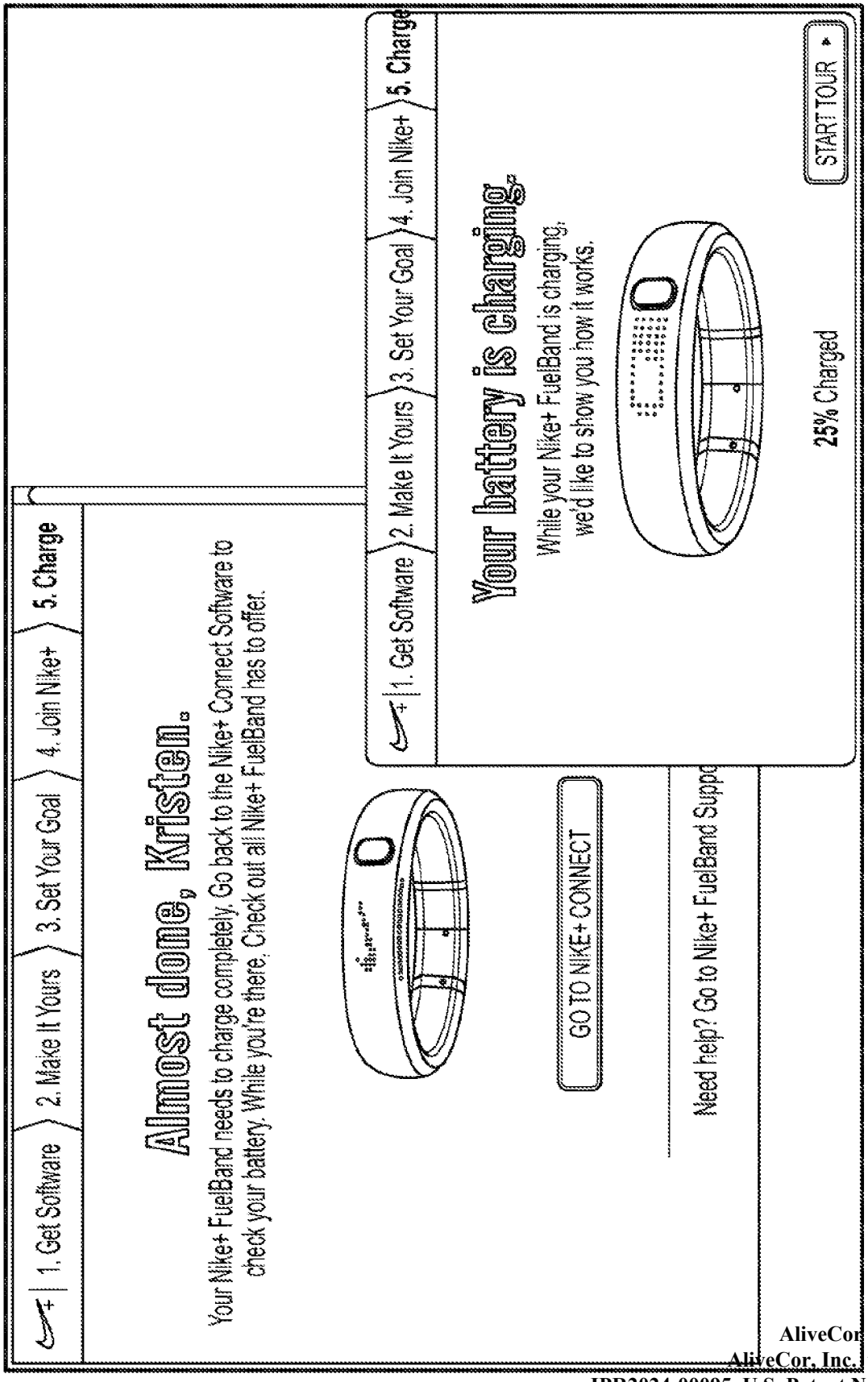


FIG. 6A

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FIG. 6B

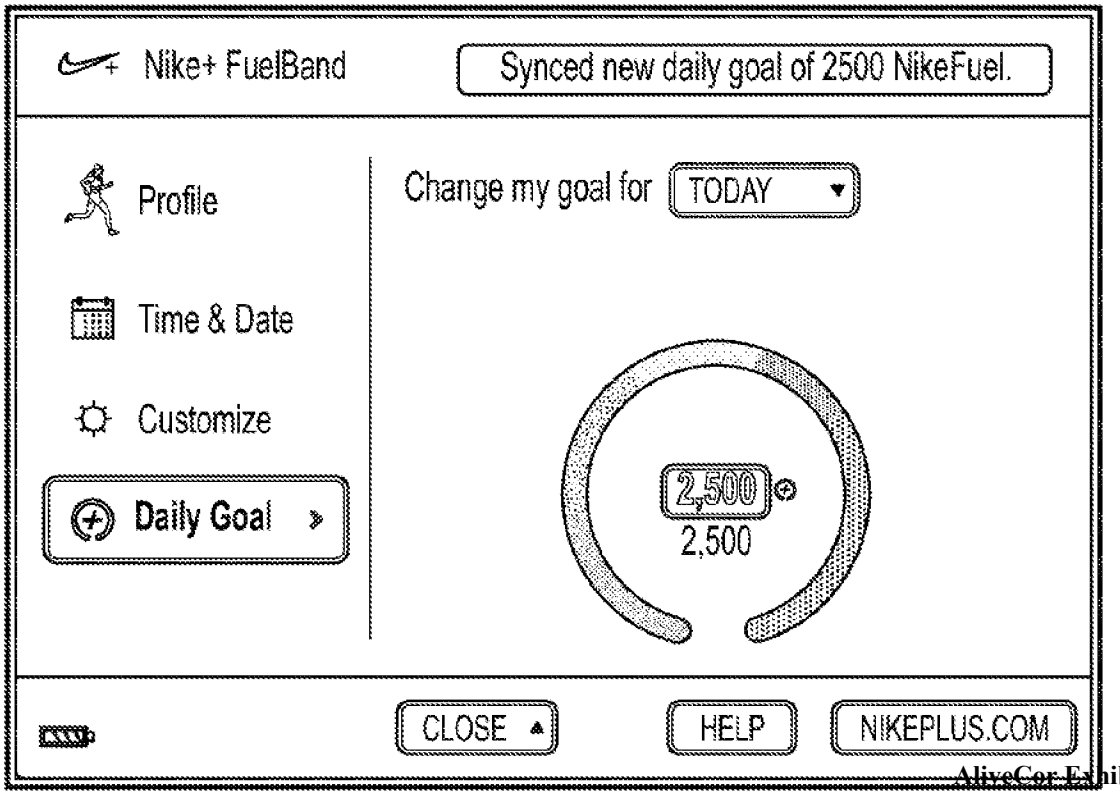


FIG. 7

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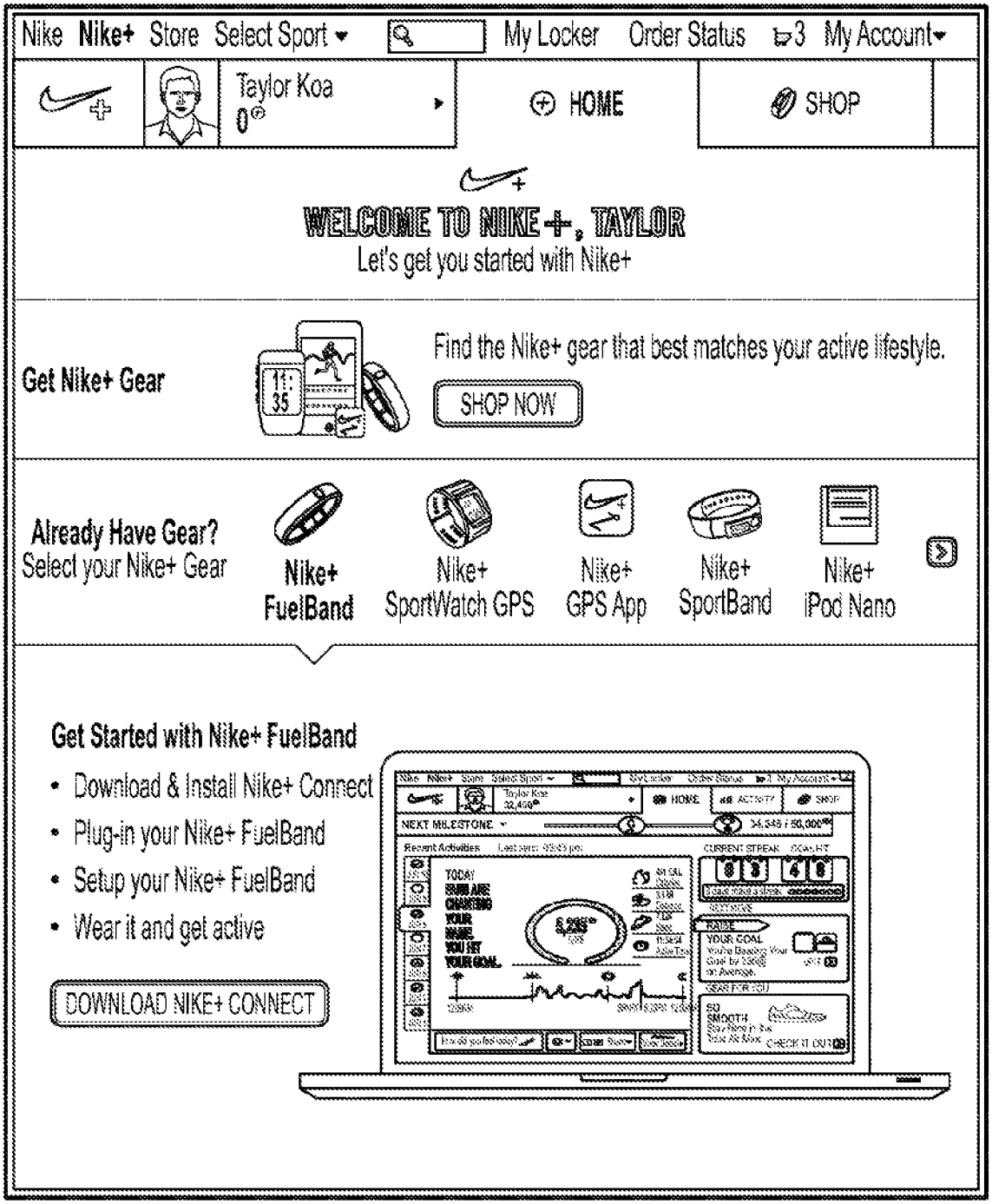


FIG. 8A

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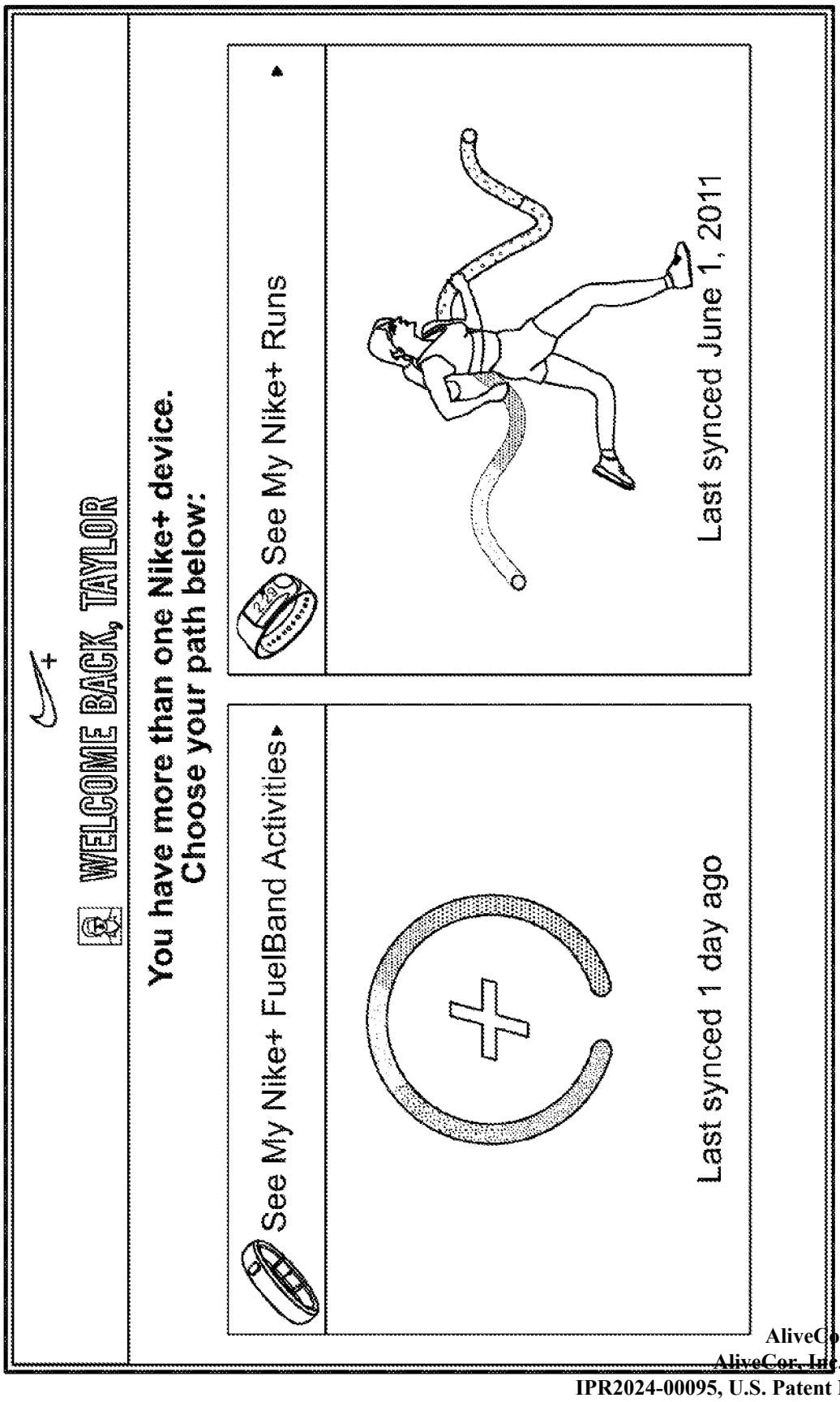


FIG. 8B

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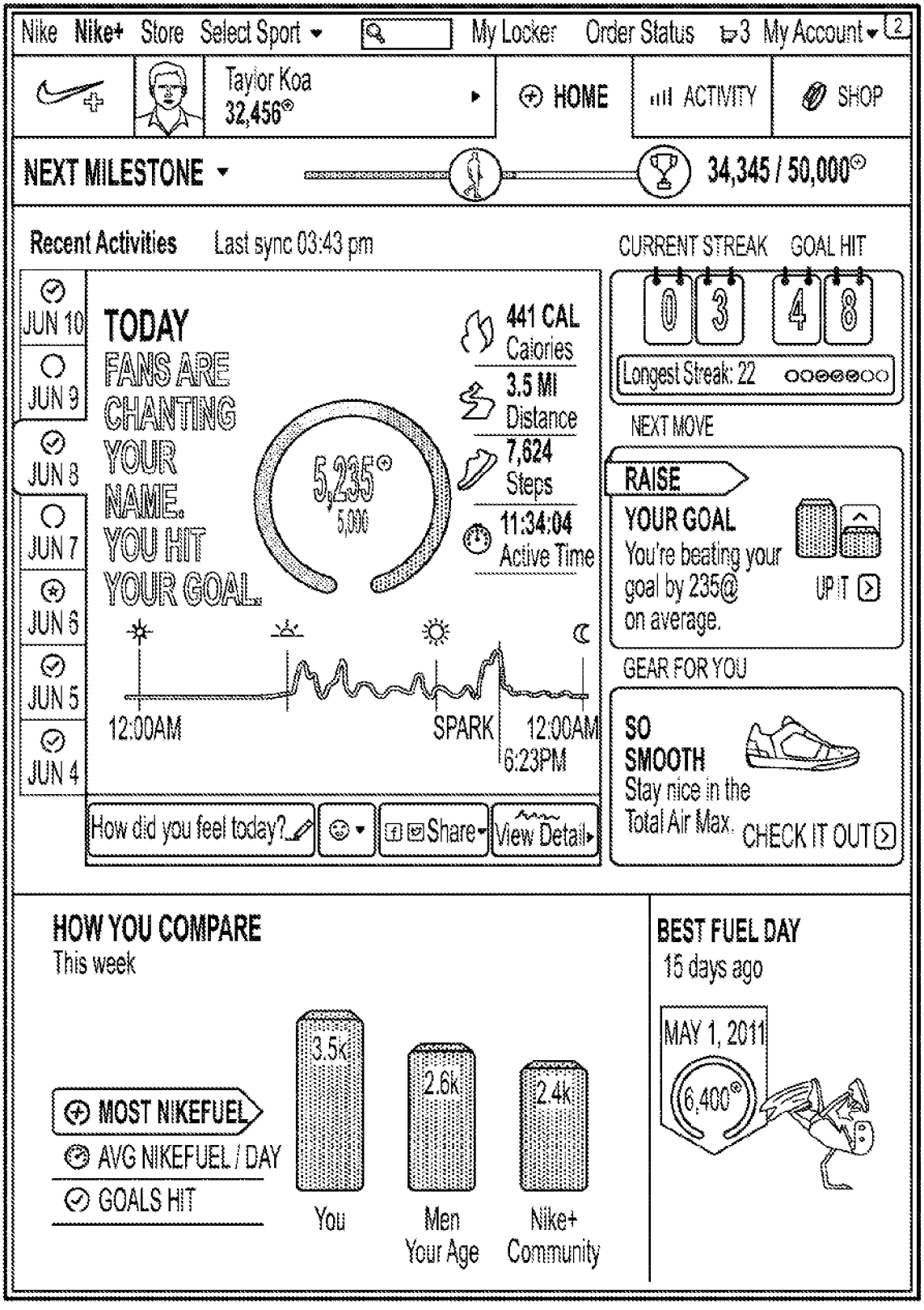


FIG. 9A

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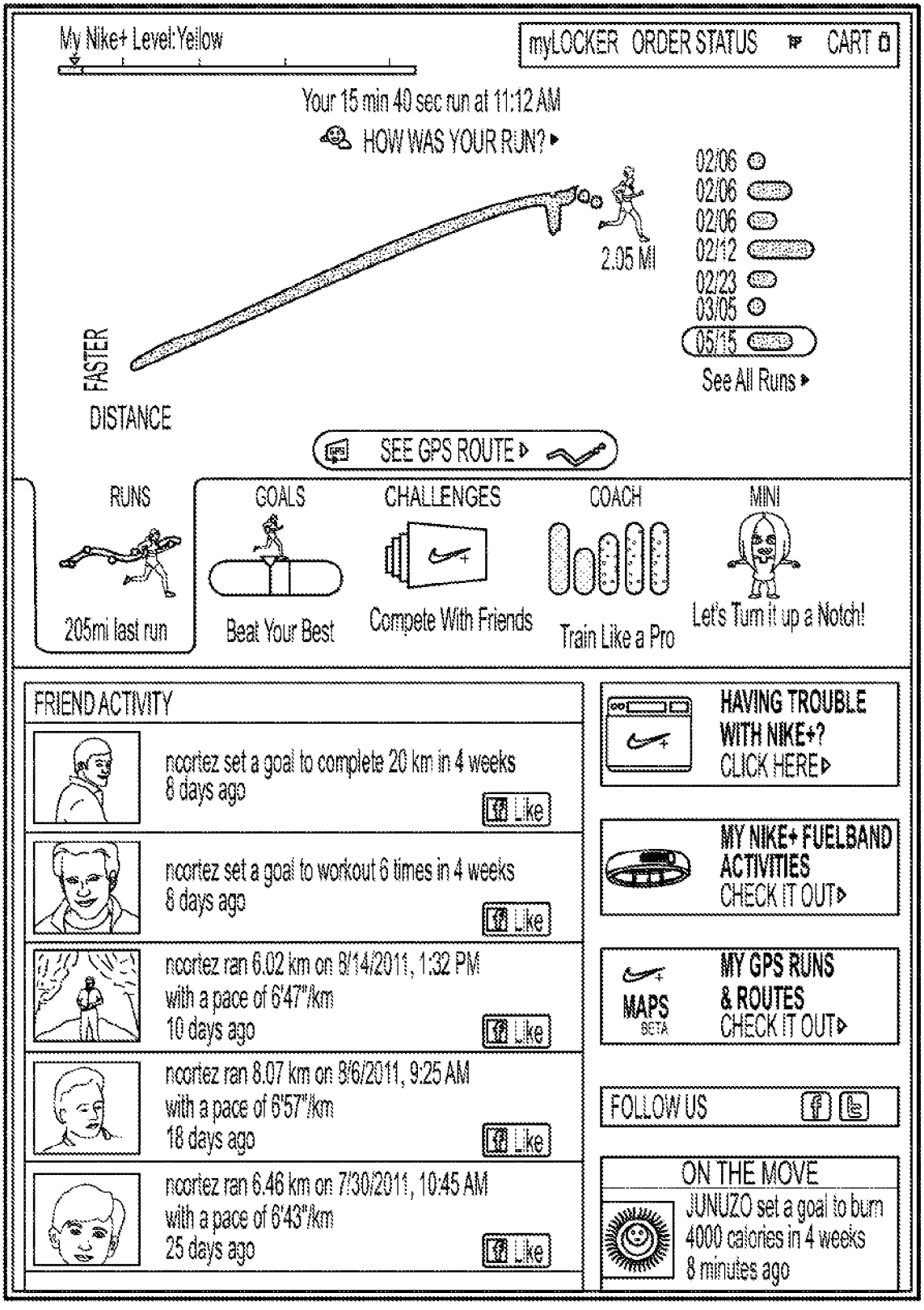


FIG. 9B

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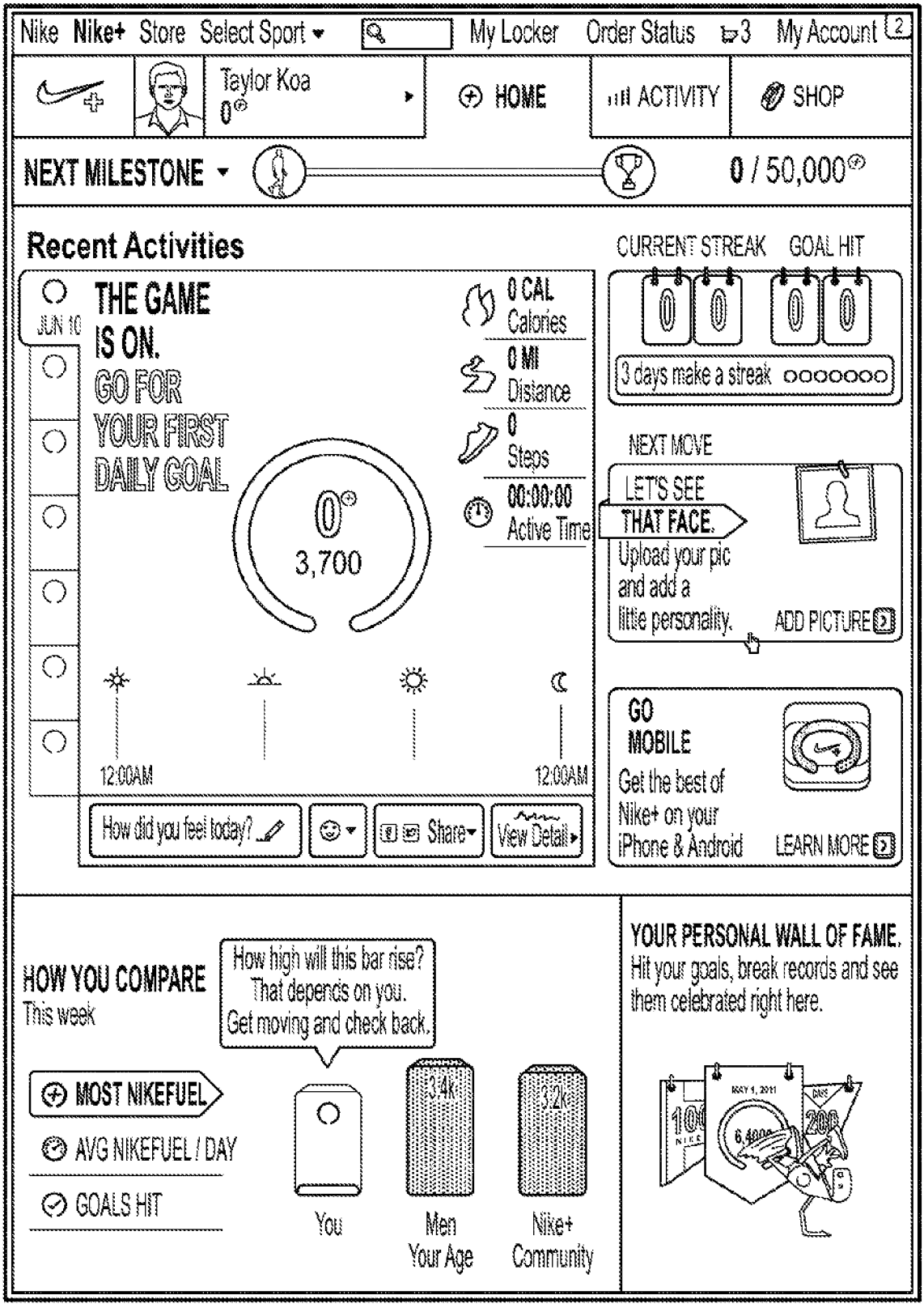


FIG. 10A

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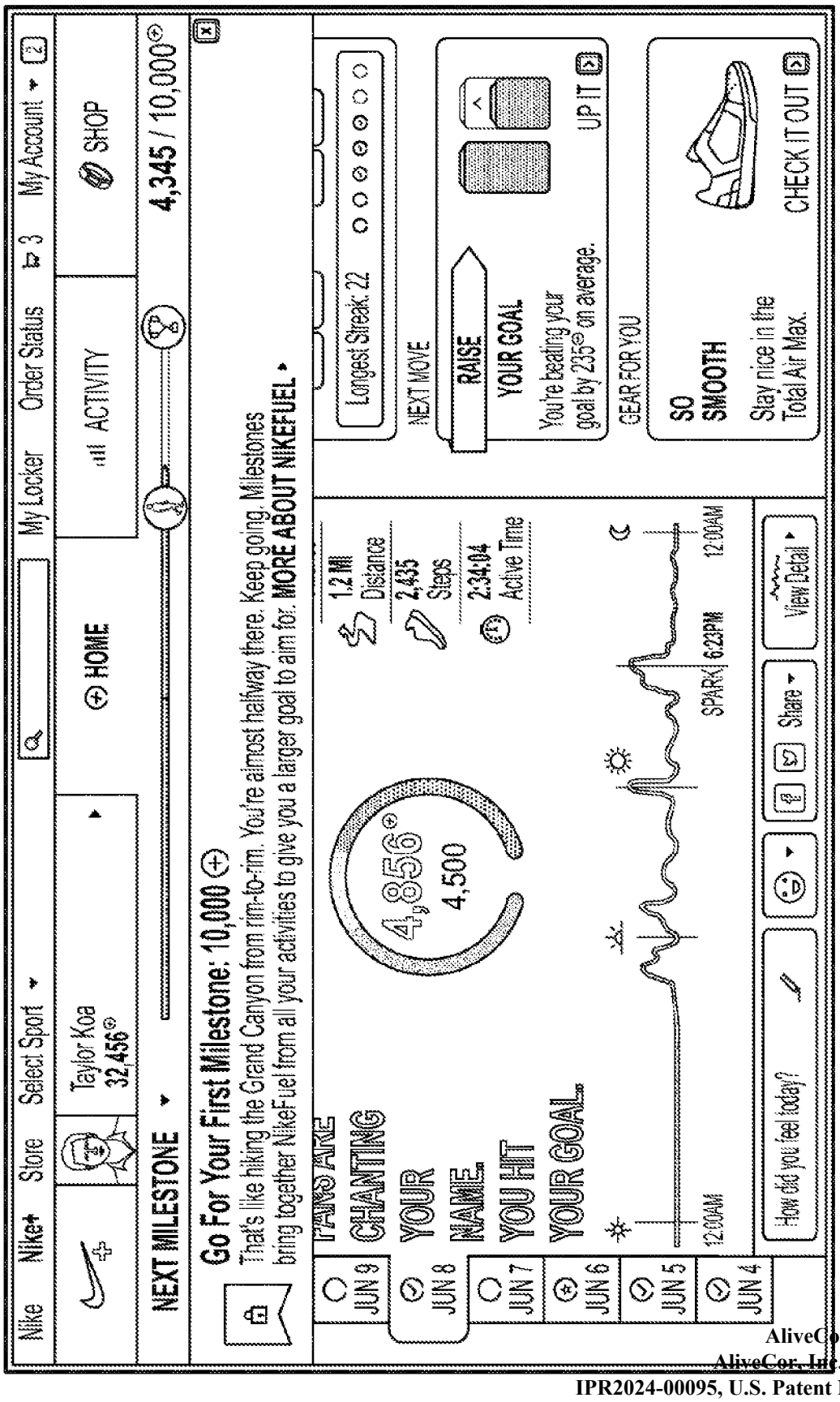


FIG. 10B

AliveCor Exhibit 1002
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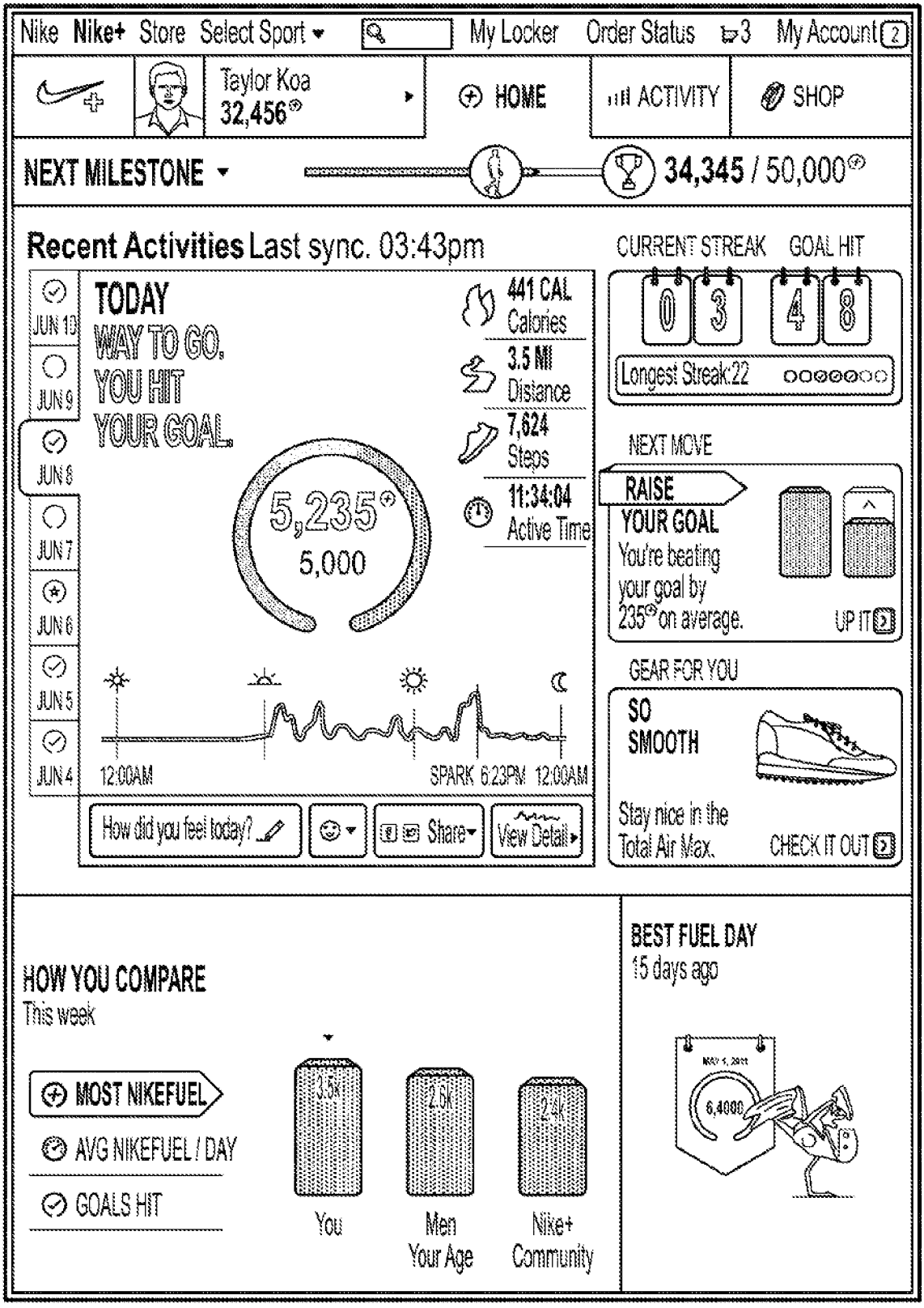


FIG. 10C

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
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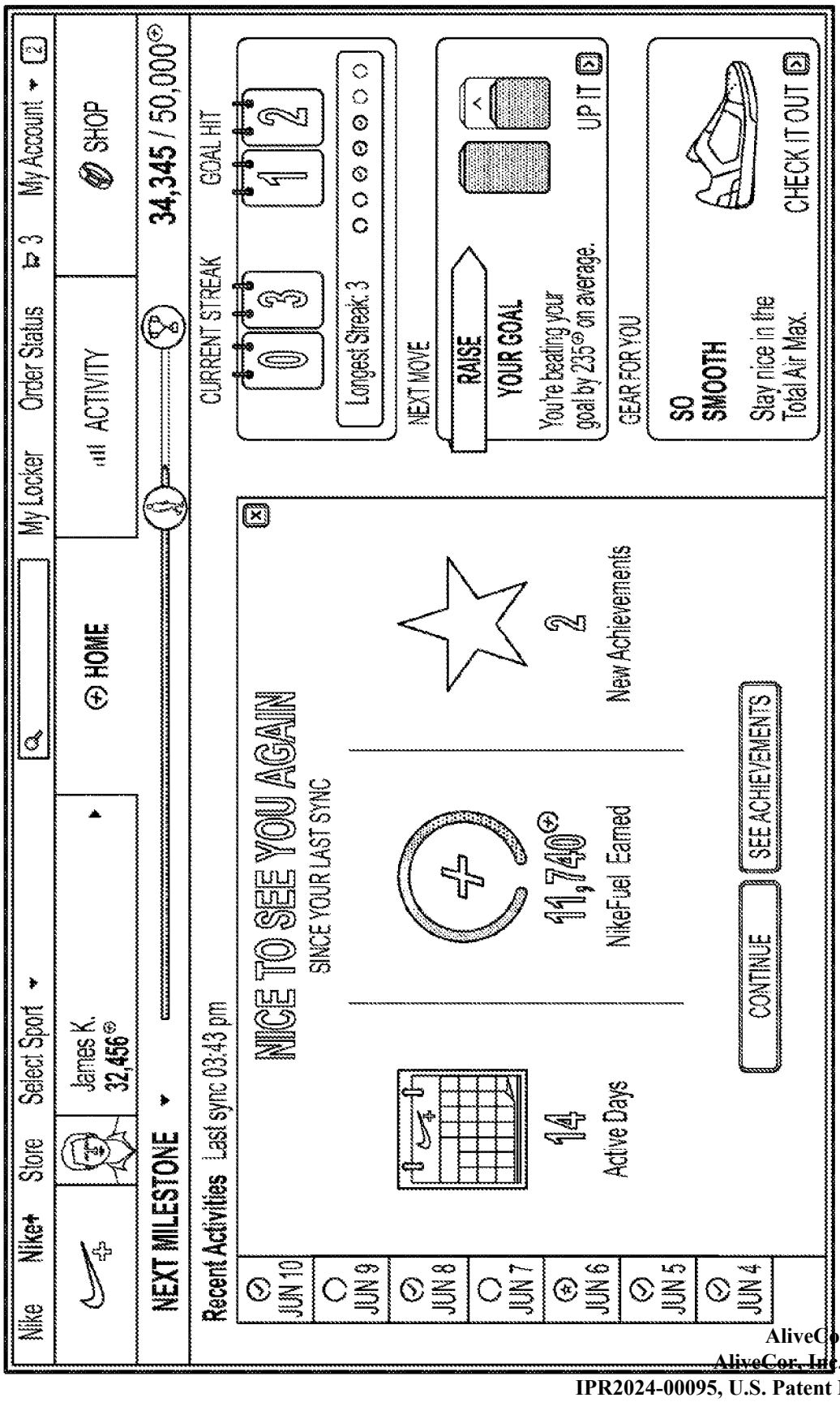


FIG. 10D

AliveCor Exhibit 1002
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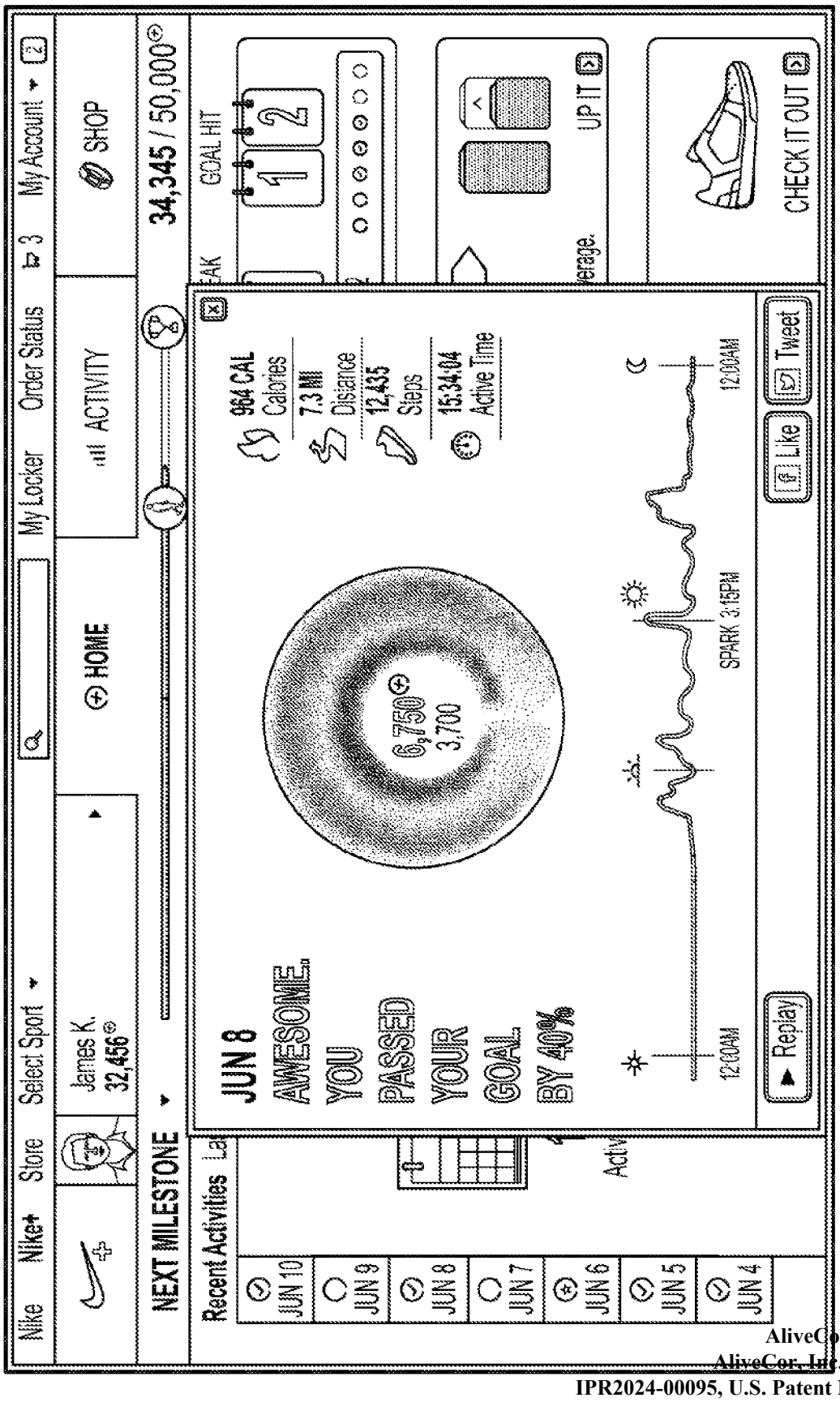


FIG. 10E

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
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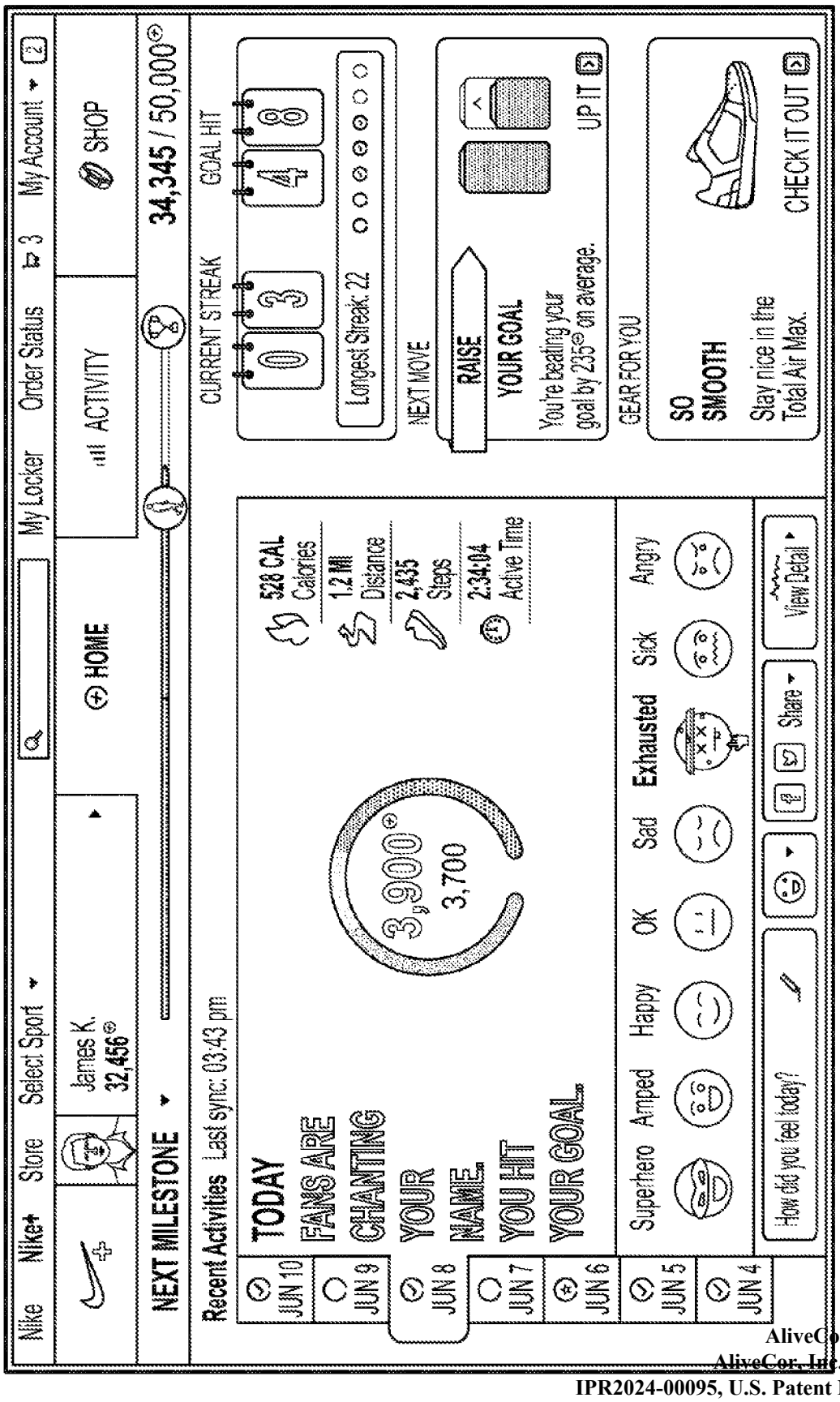


FIG. 10F

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
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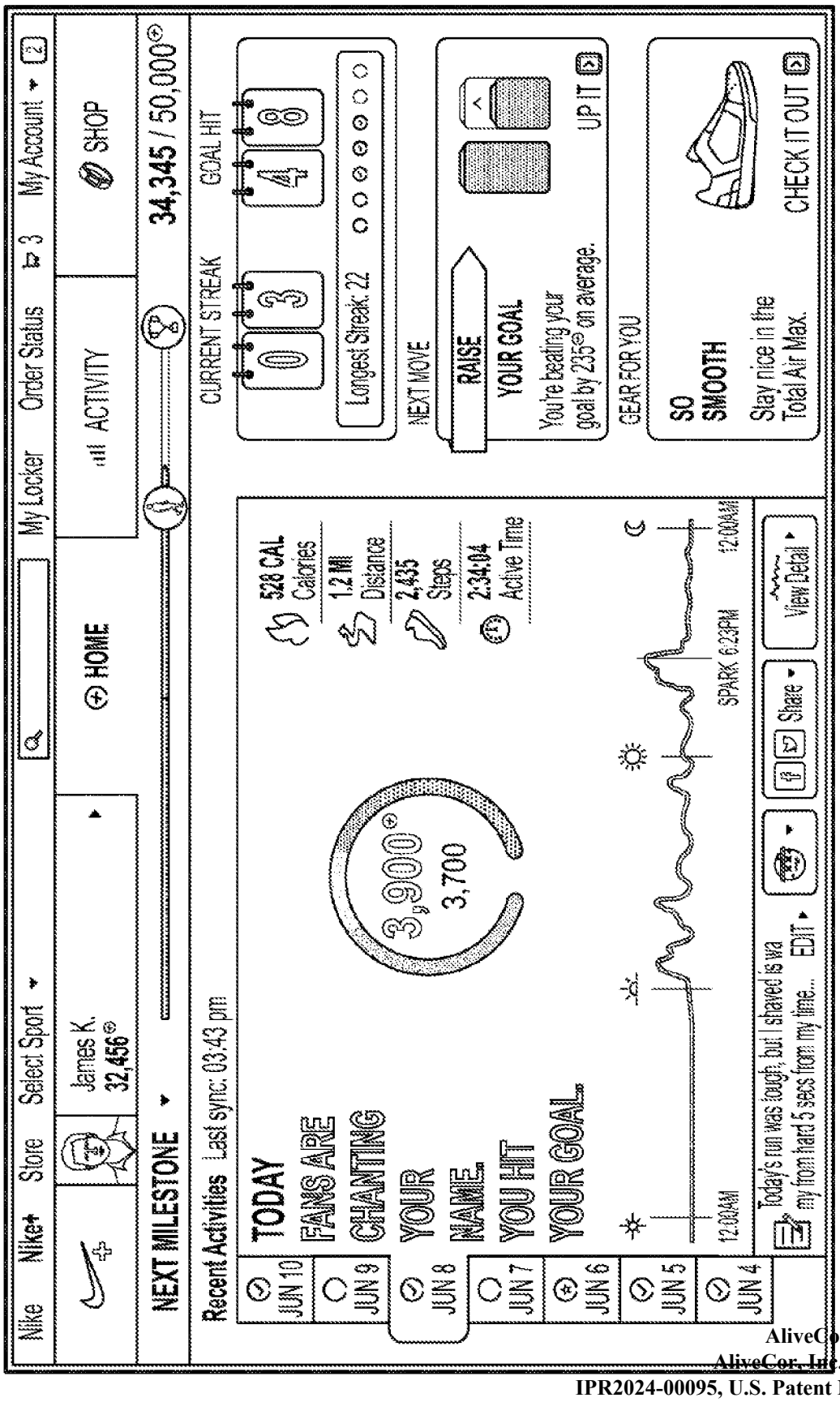


FIG. 10G

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
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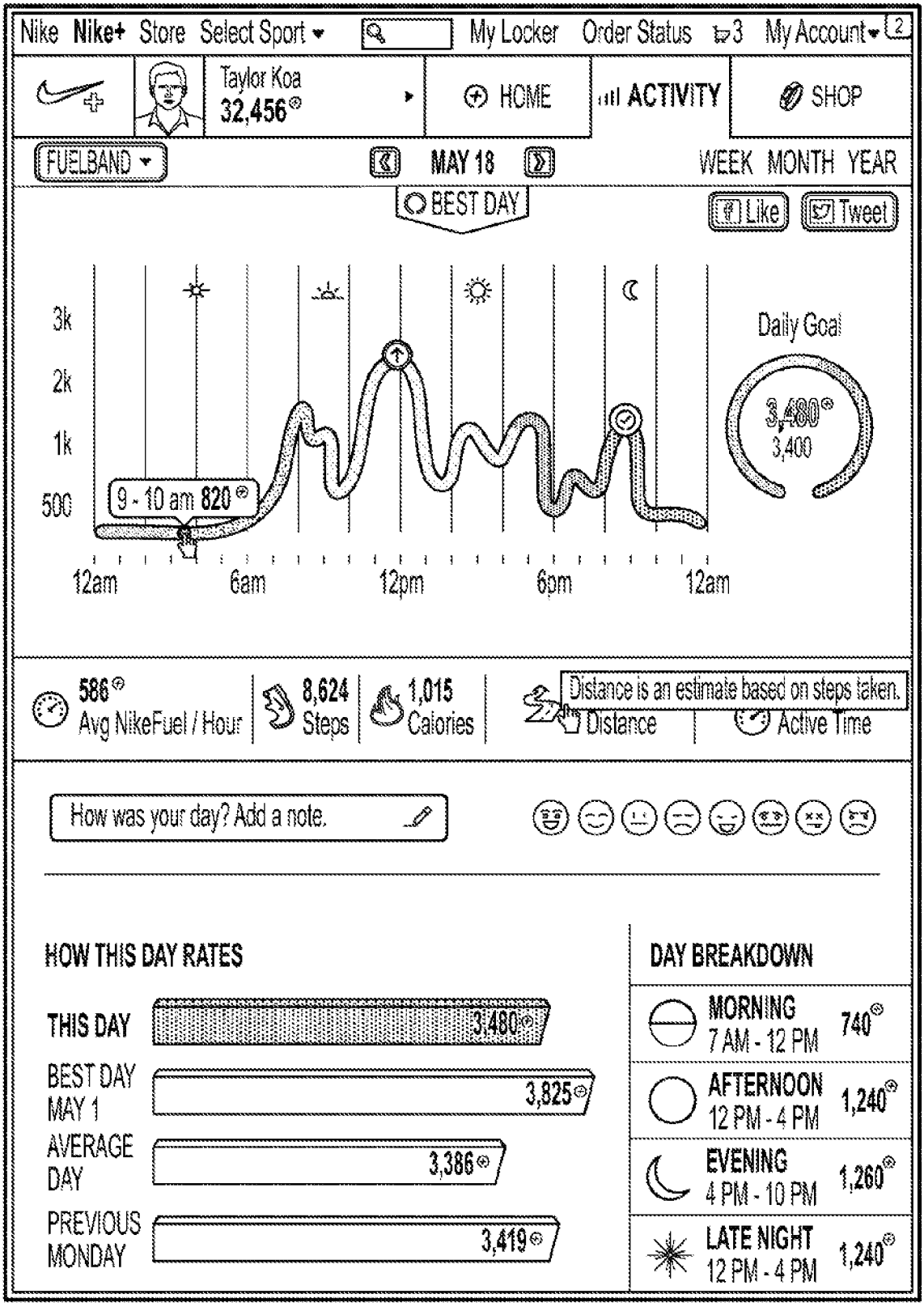


FIG. 11A

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
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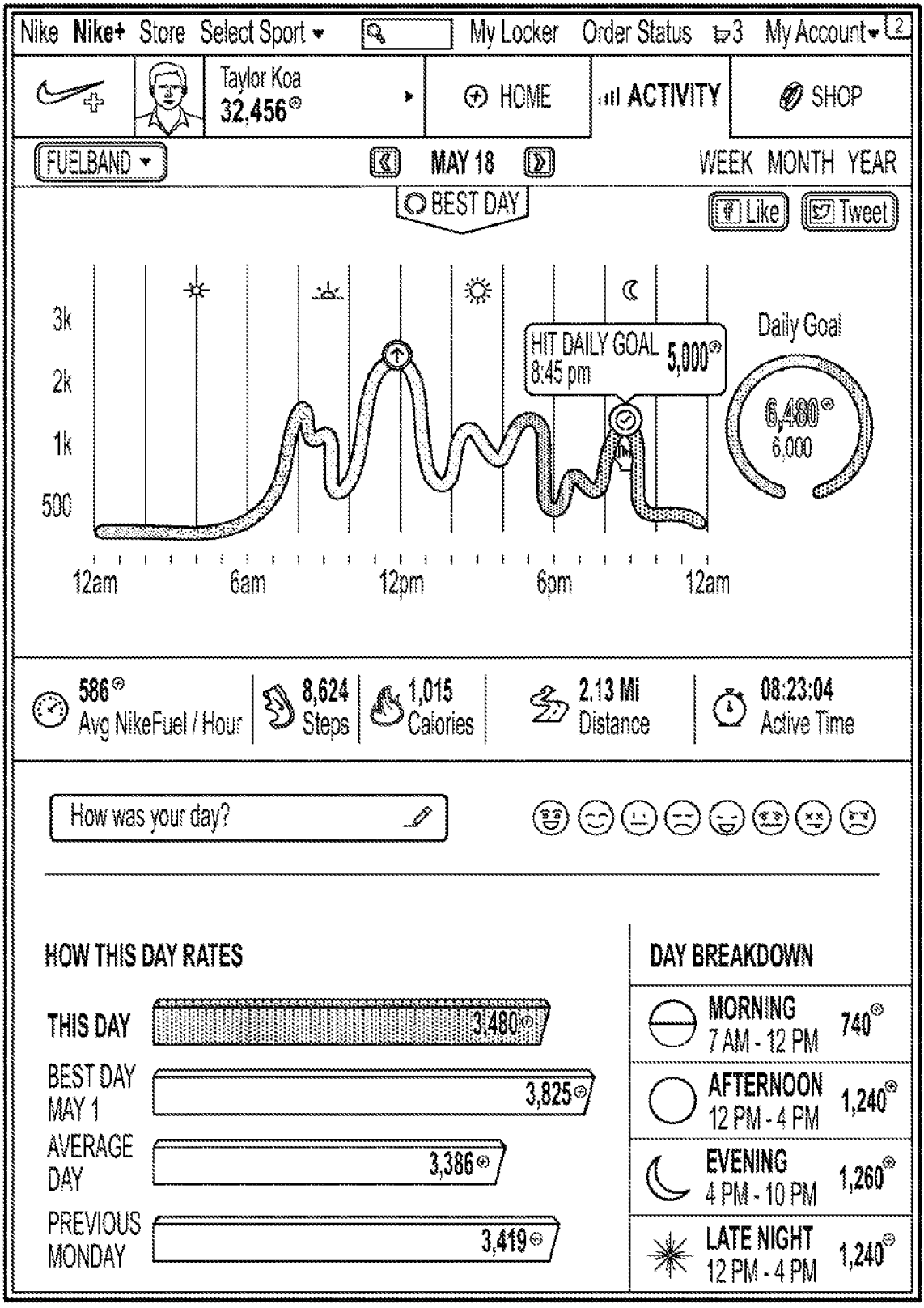


FIG. 11B

AliveCor Exhibit 1002
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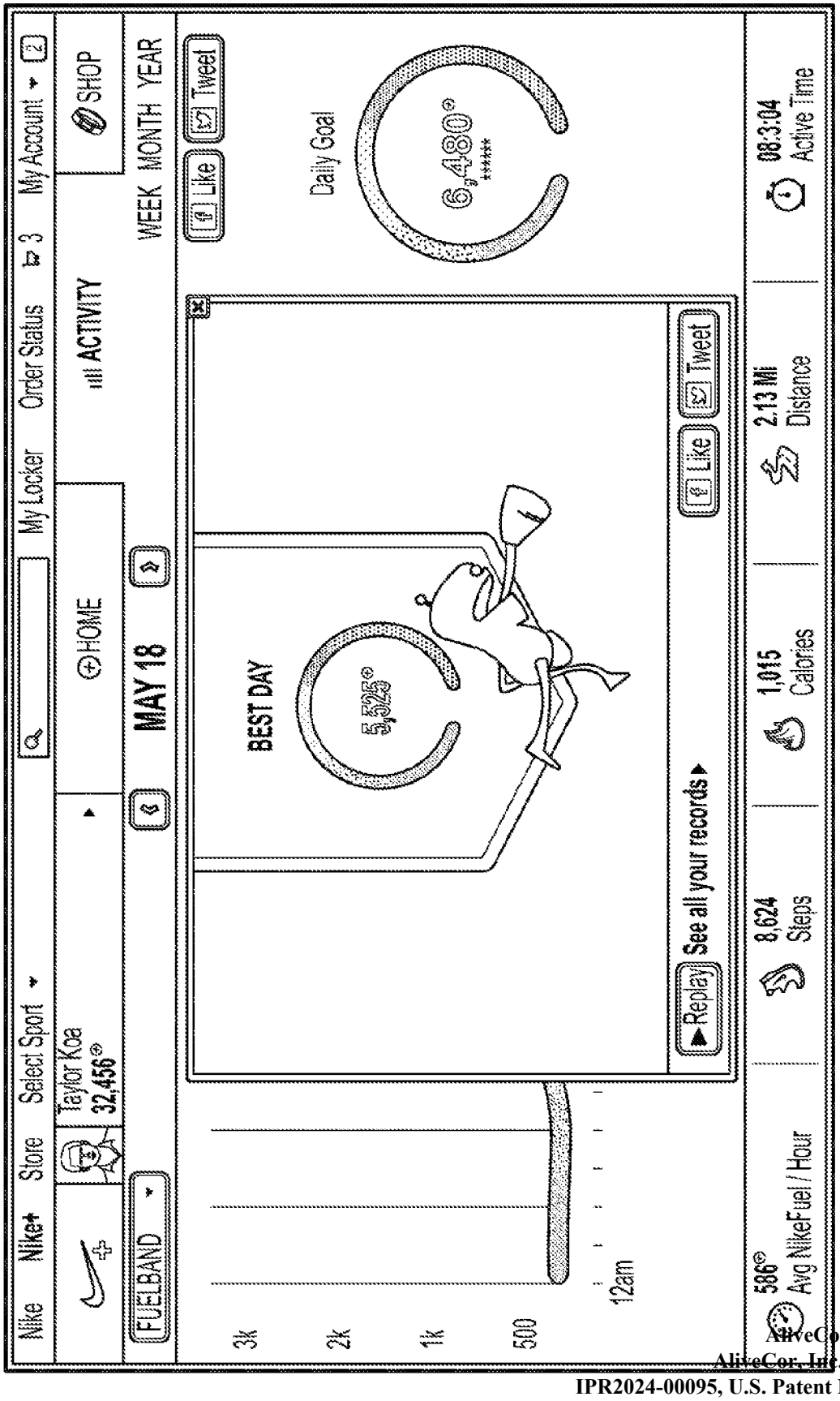


FIG. 11C

AliveCor Exhibit 1002
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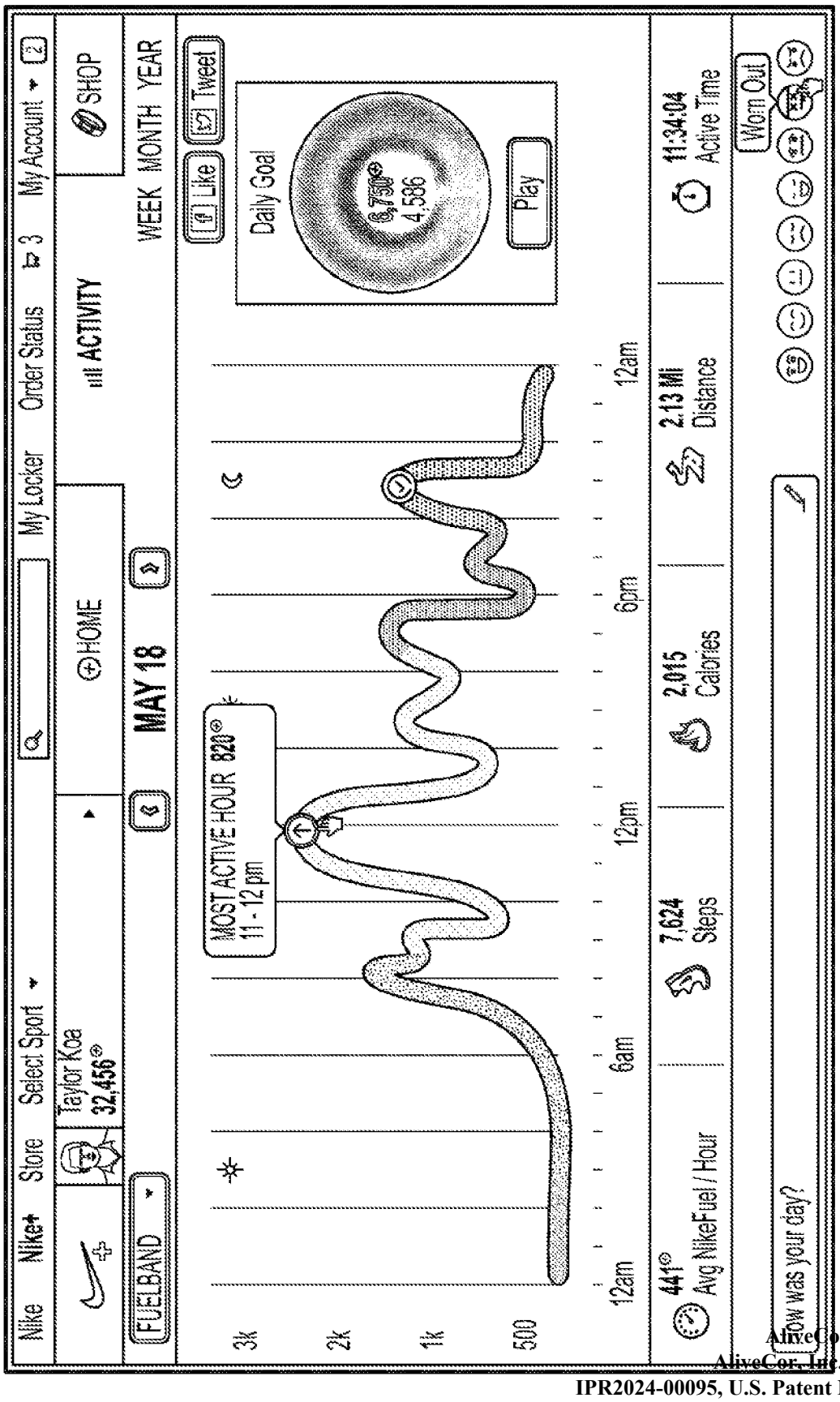


FIG. 11D

AliveCor Exhibit 1002
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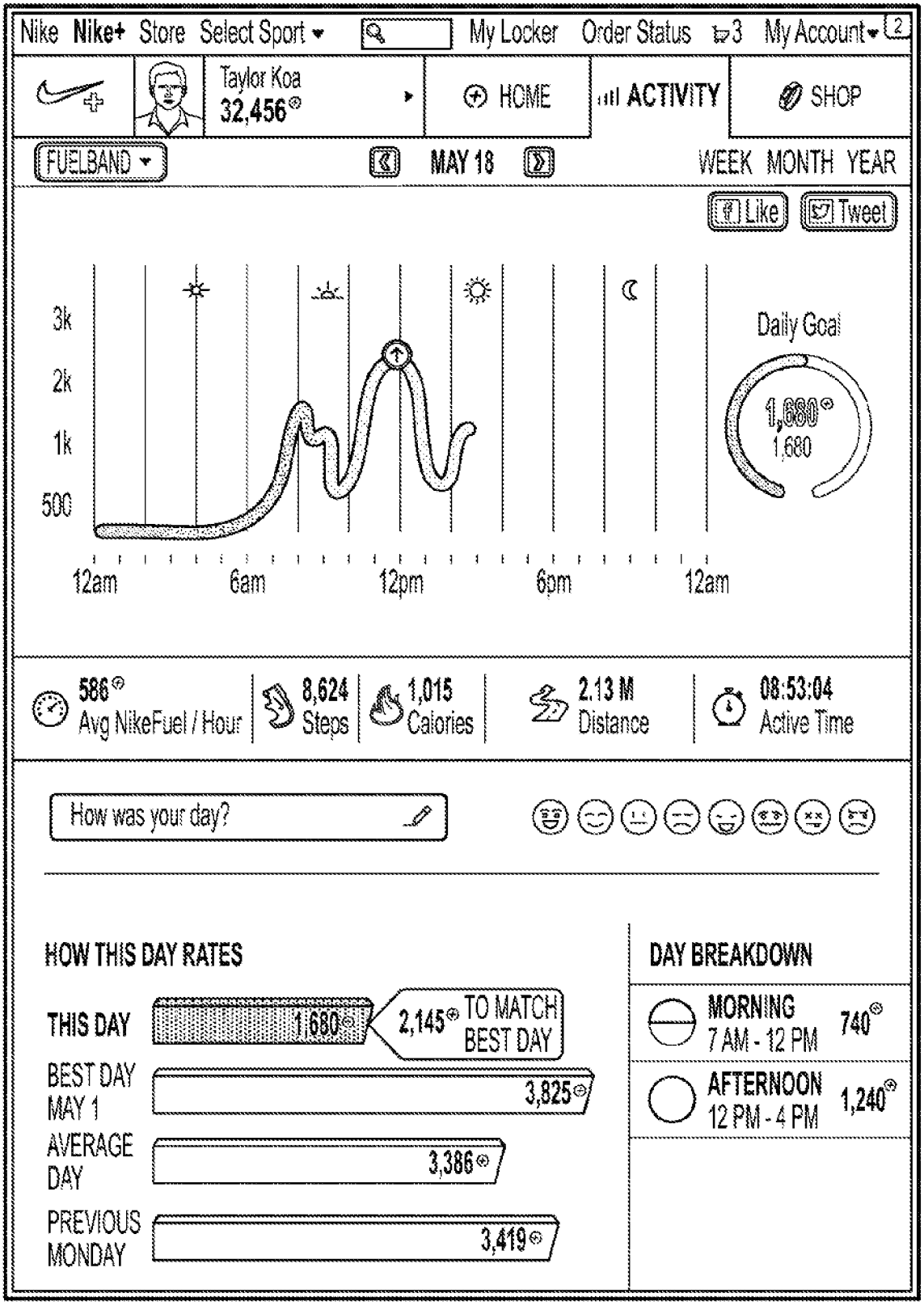


FIG. 12

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
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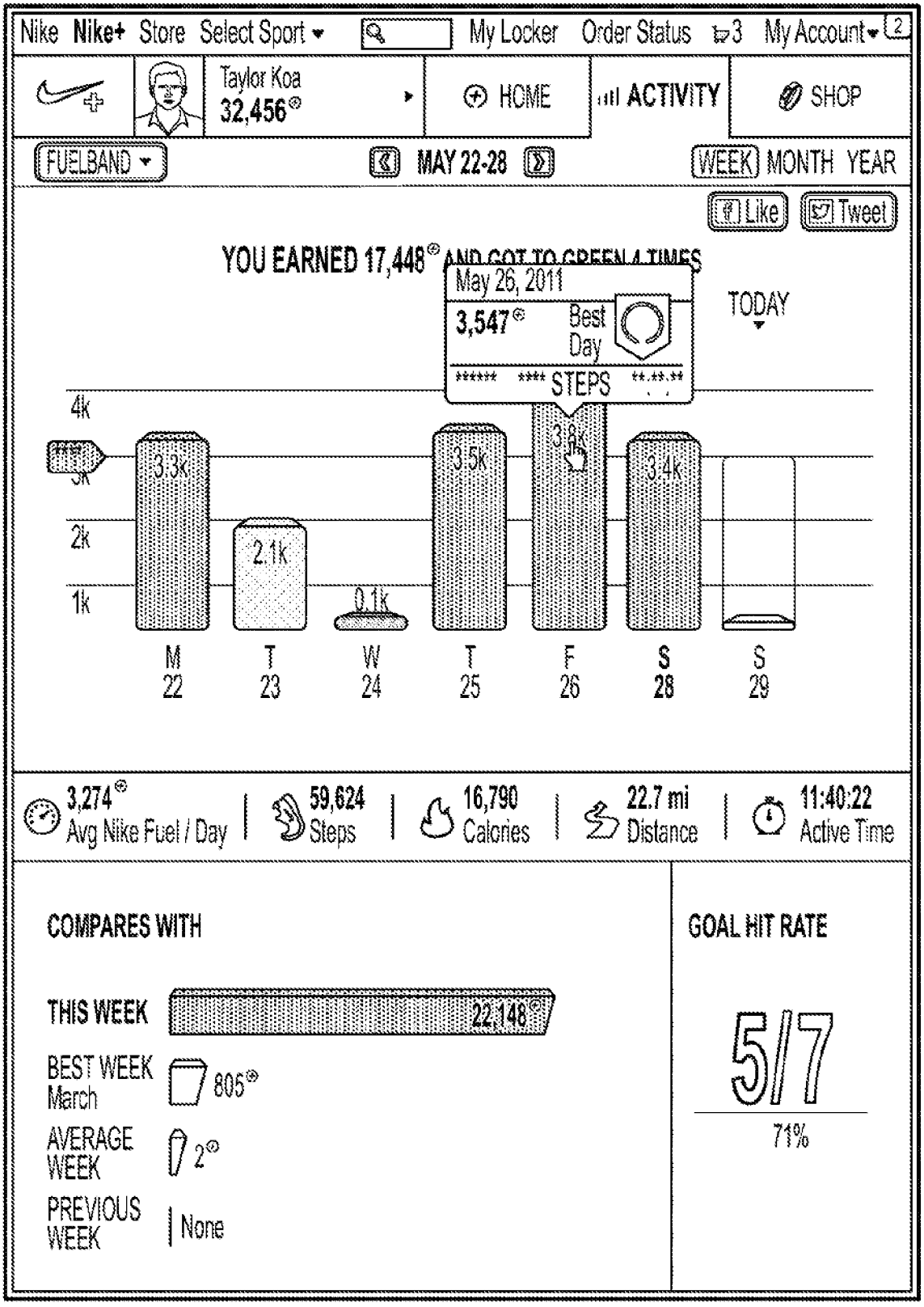


FIG. 13A

AliveCor Exhibit 1002
AliveCor, Inc. v. Apple Inc.
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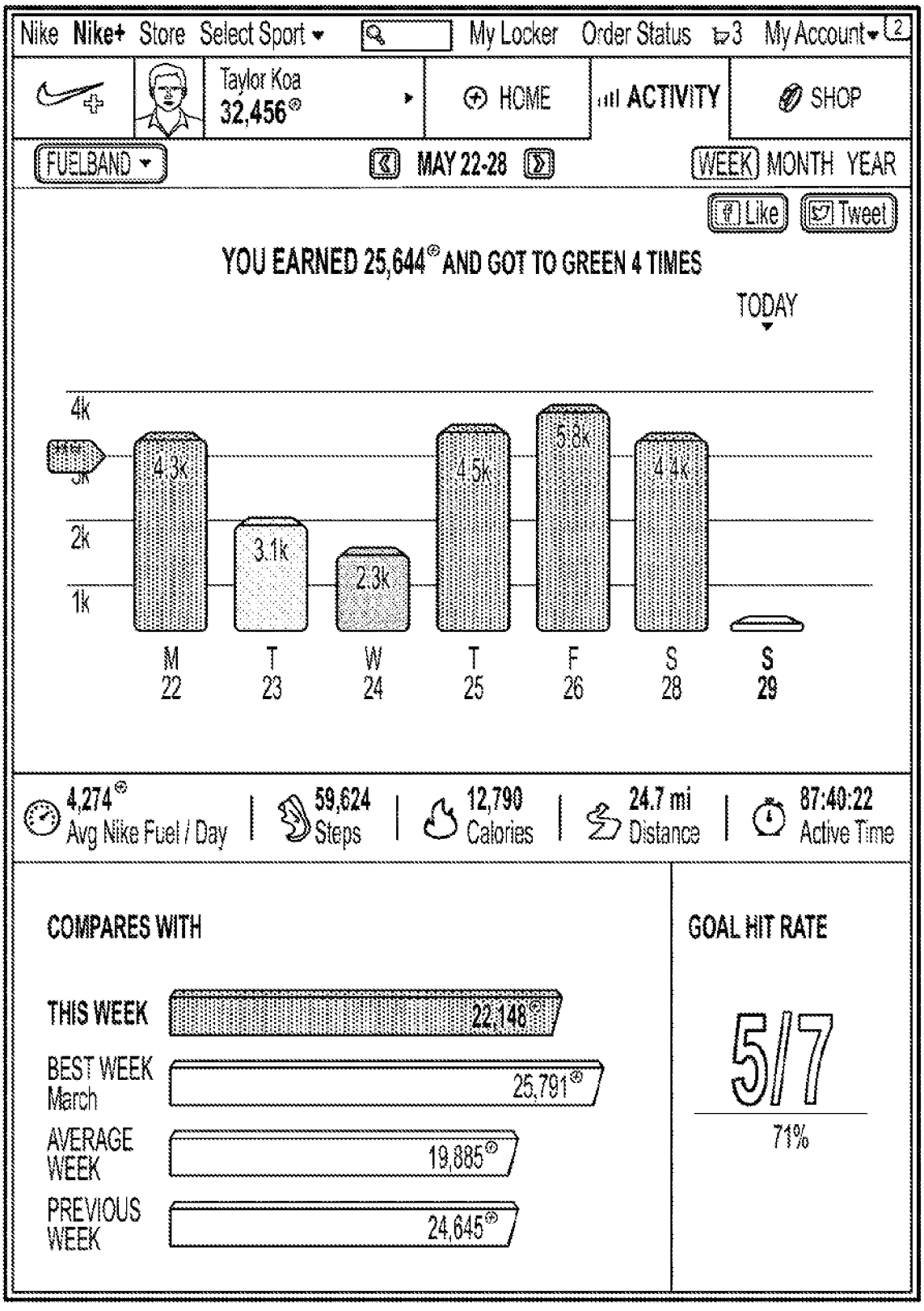


FIG. 13B

AliveCor Exhibit 1002
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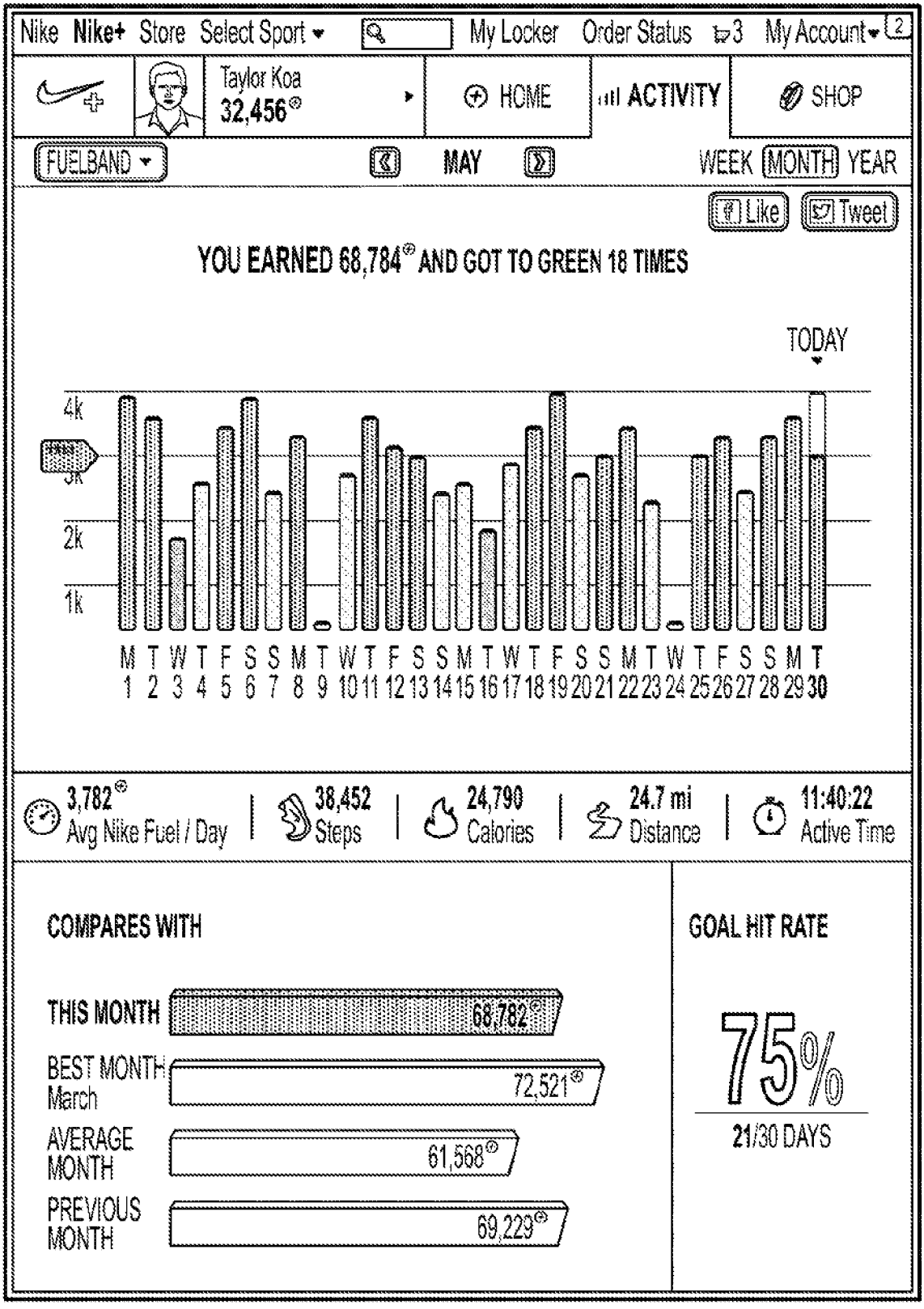


FIG. 13C

AliveCor Exhibit 1002
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