



(51) International Patent Classification:

A61B 5/145 (2006.01) *A61B 5/02* (2006.01)
A61B 5/1455 (2006.01) *G06F 19/00* (2011.01)

(21) International Application Number:

PCT/US2012/021919

(22) International Filing Date:

19 January 2012 (19.01.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/434,014 19 January 2011 (19.01.2011) US

(71) Applicant (for all designated States except US): THE RE-

GENTS OF THE UNIVERSITY OF CALIFORNIA
[US/US]; 1111 Franklin Street, 12th Floor, Oakland, Cali-
fornia 94607-5200 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **SARRAFZADEH, Majid** [US/US]; 255 Heath Terrace, Anaheim Hills, Cali-
fornia 92807 (US). **KAISER, William** [US/US]; 15520
Casiano Court, Los Angeles, California 90077 (US).
BATES-JENSEN, Barbara [US/US]; 300 South Vinedo
Ave., Pasadena, California 91107 (US). **MEHRNIA, Alireza** [IR/US]; 3240 Sawtelle Blvd., #207, Los Angeles,
California 90066 (US). **MAPAR, Bijan** [US/US]; 2199
Greenkeepers Court, Reston, Virginia 20191 (US).
WANG, Frank [US/US]; 21909 San Fernando Ave., Cu-
pertino, California 95014 (US).

(74) Agent: **O'BANION, John**; O'banion & Ritchey LLP, 400
Capitol Mall, Suite 1550, Sacramento, California 95814
(US).

(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, 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, 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.

(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,

[Continued on next page]

(54) Title: APPARATUS, SYSTEMS, AND METHODS FOR TISSUE OXIMETRY AND PERFUSION IMAGING

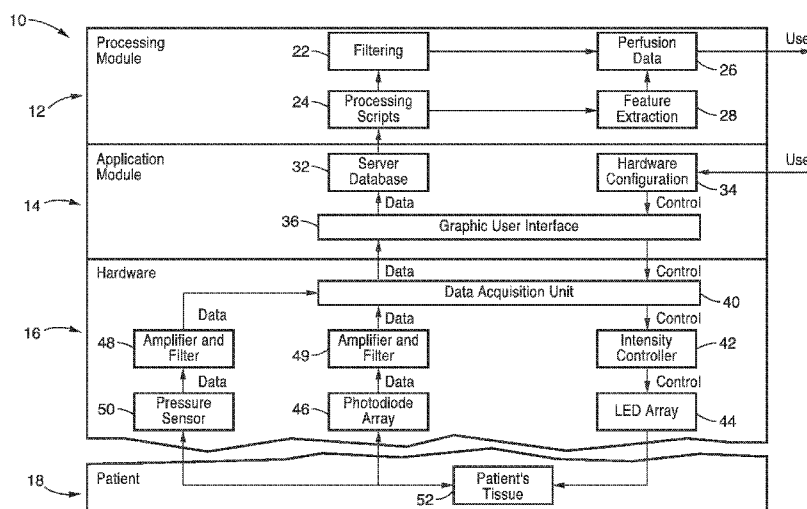


FIG. 1

(57) Abstract: A compact perfusion scanner and method of characterizing tissue health status are disclosed that incorporate pressure sensing components in conjunction with the optical sensors to monitor the level of applied pressure on target tissue for precise skin/tissue blood perfusion measurements and oximetry. The systems and methods allow perfusion imaging and perfusion mapping (geometric and temporal), signal processing and pattern recognition, noise cancelling and data fusion of perfusion data, scanner position and pressure readings.



UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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).

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

Declarations under Rule 4.17:

- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

(88) Date of publication of the international search report:

13 September 2012