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(54) Title: REAL-TIME FATIGUE, PERSONAL EFFECTIVENESS, INJURY RISK DEVICE(S)

(57) Abstract: A wireless wearable device to passively detect fatigue in a user may include a suite of sensors including but not limited to accelerometry sensors for generating motion signals in response to a user's body motion, force sensors for generating force signals in response to force exerted by a body portion on the force sensor, and biometric sensors for generating biometric signals indicative of biometric activity including GSR, EMG, bioimpedance, image sensors, and arousal in the SNS. The suite of sensors may operate to passively determine, one or more of TRHR, systemic inflammation (I), contraction (C) (e.g., due to dehydration), stress, fatigue, and mood without any intervention or action on part of the user. The suite of sensors may comprise sensors distributed among a plurality of wireless wearable devices that are wirelessly linked and may share sensor data and data processing in making determinations of fatigue in the user.

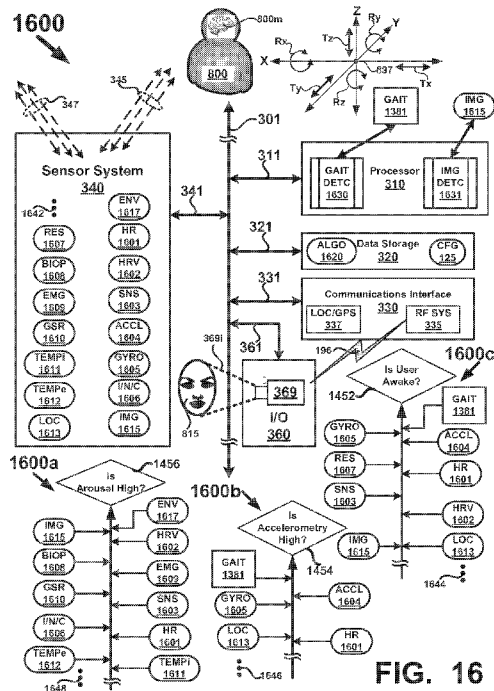


FIG. 16



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 14/72874

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61B 5/00 (2015.01)

CPC - A61B 5/0002

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)

IPC(8): A61B 5/00 (2015.01)

CPC: A61B 5/0002

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
CPC: A61B 5/00, A61B 5/0004, A61B 5/0006, A61B 5/0008, A61B 5/0011, A61B 5/0013 (Keyword limited search below)Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PatBase, Google Scholar, Google Patents; Search Terms: fatigue, low energy, sluggish*, lethargic, real time, passive, continuous, Acceleromet*, arousal, biometric, environmental, true resting heart rate, TRHR, fatigue, inflammation contraction nominal, I/C/N, sensor, wear*, worn, ALIPHCOM, UTTER, multi-axis, gyroscope, sympathetic nervous system,

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2012/0010488 A1 (Henry et al.) 12 January 2012 (12.01.2012) entire document especially Abstract, para [0010]-[0015], para [0032]-[0036], para [0063]-[0064]	1-21
Y	US 2012/0083705 A1 (Yuen et al.) 05 April 2012 (05.04.2012) entire document especially Abstract, para [0031], para [0055]-[0057], para [0251], para [0265]-[0266]	1-21
A	US 2008/0167572 A1 (STIVORIC et al.) 10 July 2008 (10.07.2008) entire document	1-21

 Further documents are listed in the continuation of Box C.

* 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

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"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

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