

EXHIBIT C



(12) **United States Patent**
Frix et al.

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(54) **CONTINUOUS TRANSDERMAL MONITORING SYSTEM AND METHOD**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

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Related U.S. Application Data

(63) Continuation of application No. 14/795,157, filed on Jul. 9, 2015, now Pat. No. 9,339,237, which is a (Continued)

(51) **Int. Cl.**
A61B 5/02 (2006.01)
A61B 5/00 (2006.01)
(Continued)

(52) **U.S. Cl.**
CPC **A61B 5/721** (2013.01); **A61B 5/0004** (2013.01); **A61B 5/02416** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC A63B 2220/40; A61B 5/1118; A61B 5/02; A61B 5/024; A61B 5/00; A61B 5/1455;
(Continued)

(56) **References Cited**
U.S. PATENT DOCUMENTS

6,697,655 B2* 2/2004 Sueppel A61B 5/14551 600/310
7,658,716 B2 2/2010 Banet et al.
(Continued)

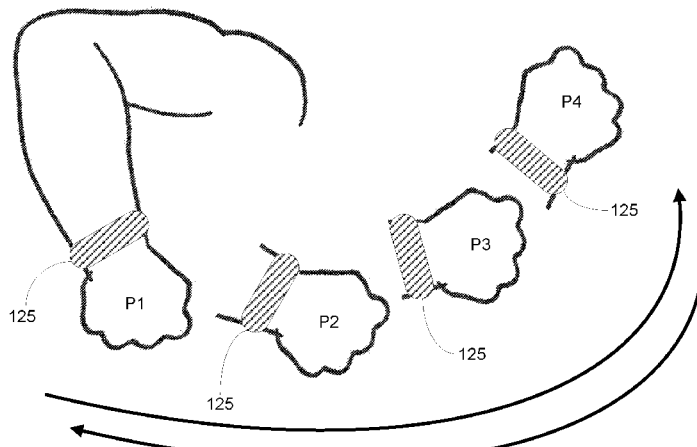
FOREIGN PATENT DOCUMENTS

DE 102006017970 A1 10/2007
WO 2006079862 A2 8/2006

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(57) **ABSTRACT**
Various embodiments of methods and systems for continuous transdermal monitoring (“CTM”) are disclosed. One exemplary method for CTM begins by monitoring an output signal from an accelerometer. The accelerometer output signal may indicate acceleration and deceleration of a body part of a user, such as the user’s wrist. Based on the accelerometer output signal, it may be determined that the body part of the user has decelerated to a minimum, e.g., substantially zero. With a determination that the body part has decelerated to the minimum, e.g., substantially zero, or has not accelerated beyond the minimum, e.g., substantially zero, the method may determine a reading from a pulse oximeter associated with the accelerometer. Advantageously, the pulse oximetry reading, or a reading from other sensors associated with the accelerometer, may be optimally accurate as motion artifact may be minimized. The pulse oximetry reading may be recorded for later query and/or rendered for the benefit of the user.

20 Claims, 8 Drawing Sheets



Related U.S. Application Data

continuation of application No. 14/324,963, filed on Jul. 7, 2014, now Pat. No. 9,107,644.

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A61B 5/11 (2006.01)
A61B 5/01 (2006.01)
A61B 5/0205 (2006.01)
A61B 5/021 (2006.01)
A61B 5/053 (2006.01)

(52) **U.S. Cl.**

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(58) **Field of Classification Search**

CPC *A61B 5/02416*; *A61B 5/14551*; *A61B*

5/6824; *A61B 5/0004*; *A61B 5/02433*; *A61B 5/14552*; *A61B 5/74*; *A61B 5/742*; *A61B 5/721*; *A61B 5/1126*; *A61B 2560/0475*; *A61B 5/0024*; *A61B 5/01*; *A61B 5/0205*

See application file for complete search history.

(56)

References Cited

U.S. PATENT DOCUMENTS

8,172,722	B2	5/2012	Molyneux et al.	
8,253,586	B1	8/2012	Matak	
8,289,185	B2	10/2012	Alonso	
8,396,687	B2	3/2013	Vock et al.	
8,477,046	B2	7/2013	Alonso	
2005/0228298	A1*	10/2005	Banet	<i>A61B 5/0205</i> 600/485
2007/0032711	A1*	2/2007	Coakley	<i>A61B 5/14552</i> 600/323
2008/0146895	A1	6/2008	Olson et al.	
2009/0227852	A1	9/2009	Glaser	
2010/0298683	A1	11/2010	Cabrera et al.	
2011/0166491	A1	7/2011	Sankai	
2011/0213226	A1	9/2011	Miller et al.	
2012/0172679	A1	7/2012	Logan et al.	
2012/0179067	A1*	7/2012	Wekell	<i>A61B 5/4848</i> 600/587
2012/0221254	A1	8/2012	Kateraas et al.	
2013/0125295	A1	5/2013	Krueger	
2013/0321168	A1	12/2013	Mahony et al.	
2014/0000011	A1	1/2014	Johnson	

* cited by examiner

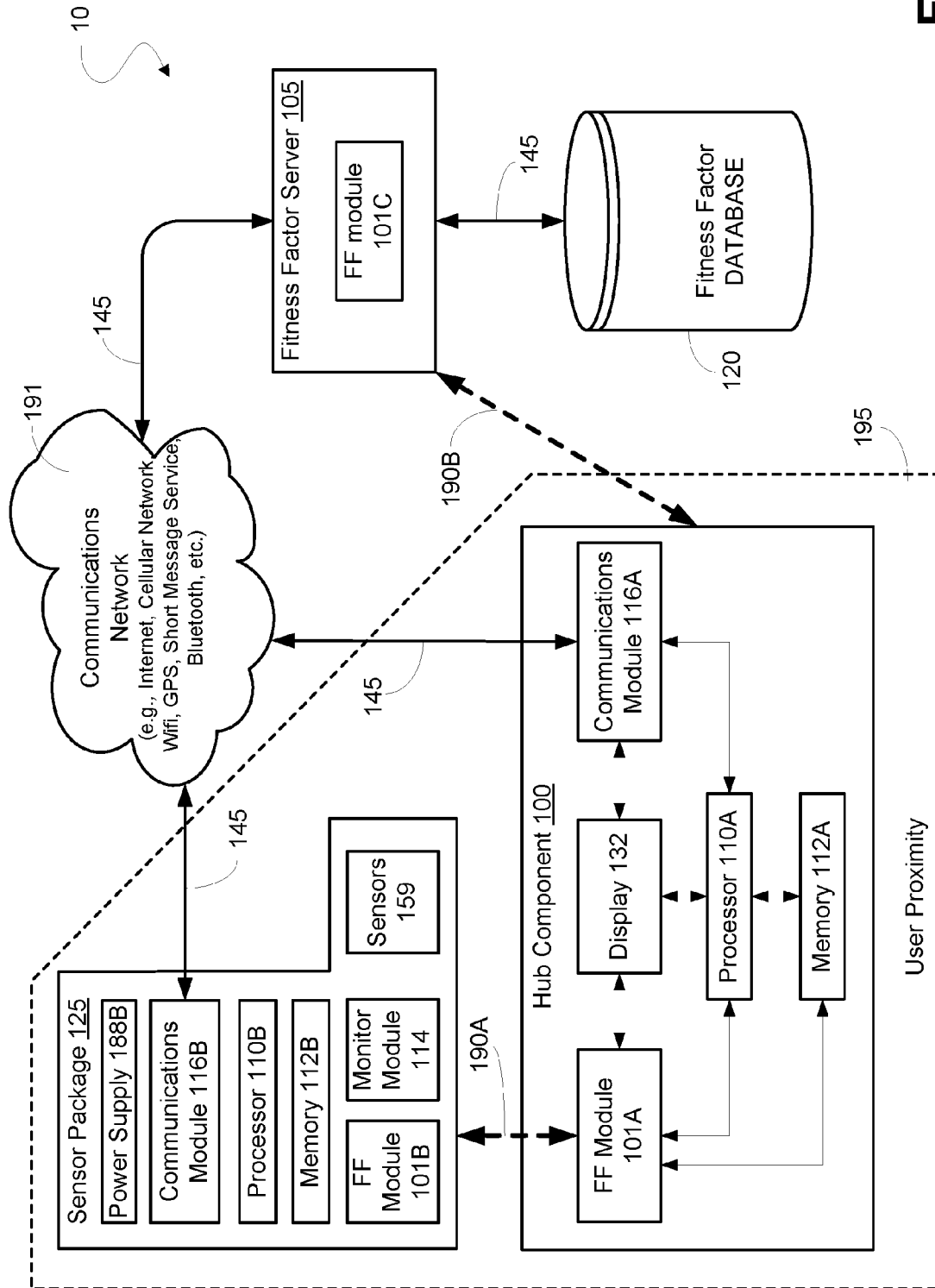


FIG. 1

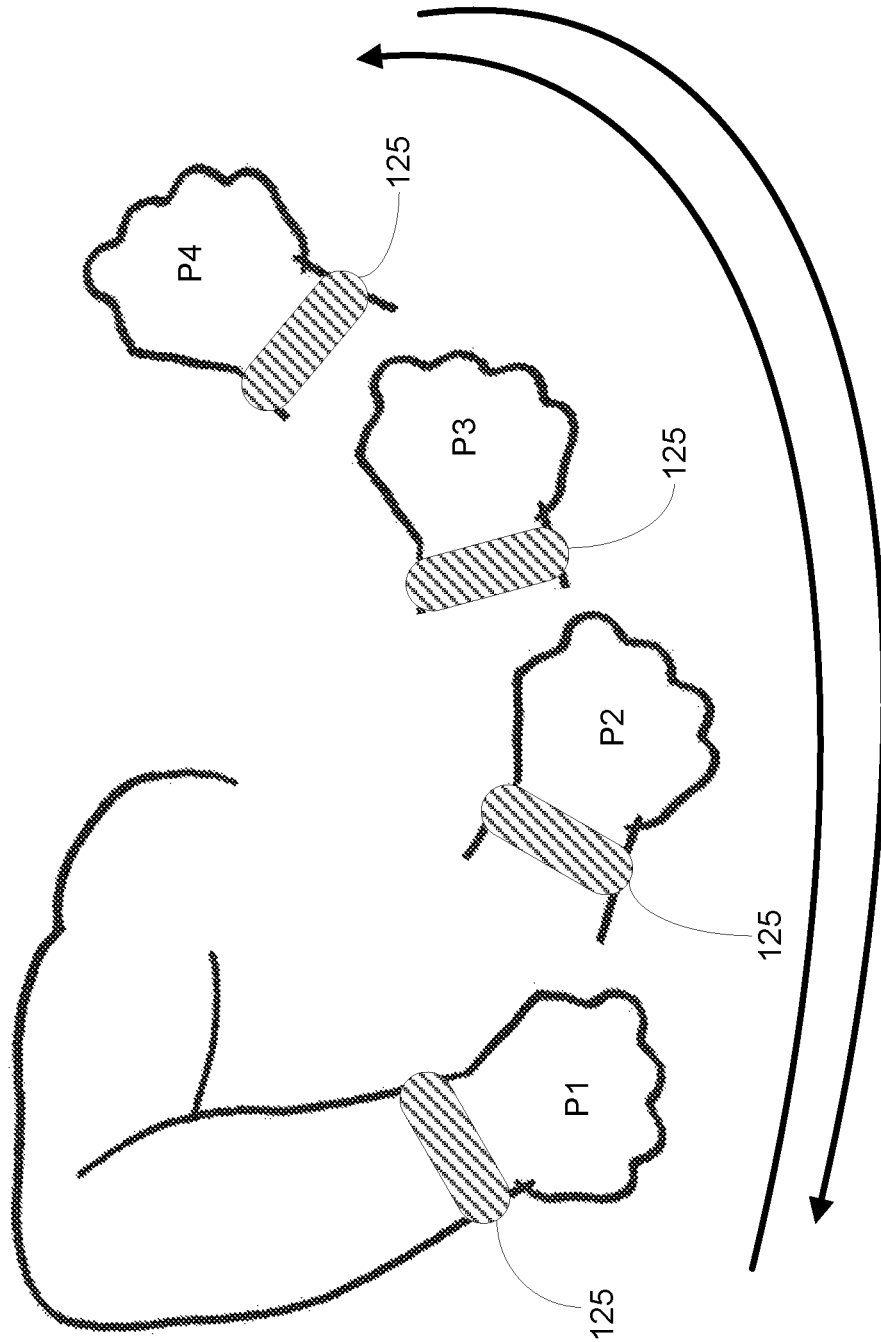


FIG. 2A

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