US010966647B2

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

(10) **Patent No.: US 10,966,647 B2**
(45) **Date of Patent: Apr. 6, 2021**

(54) **DROWSINESS DETECTION**

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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 67 days.

(21) Appl. No.: **16/255,474**

(22) Filed: **Jan. 23, 2019**

(65) **Prior Publication Data**

US 2019/0223773 A1 Jul. 25, 2019

Related U.S. Application Data

(60) Provisional application No. 62/716,464, filed on Aug. 9, 2018, provisional application No. 62/620,804, filed on Jan. 23, 2018.

(51) **Int. Cl.**
A61B 5/16 (2006.01)
A61B 5/00 (2006.01)
(Continued)

(52) **U.S. Cl.**
CPC ***A61B 5/165*** (2013.01); ***A61B 5/0002*** (2013.01); ***A61B 5/0205*** (2013.01); ***A61B 5/18*** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC A61B 5/165; A61B 5/0002; A61B 5/0205; A61B 5/7257; A61B 5/18; A61B 5/681;
(Continued)

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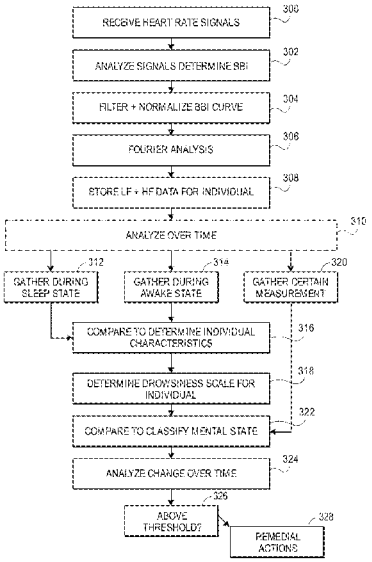
(57) **ABSTRACT**

A mobile electronic device is operable to detect and display a mental state of a user such as drowsiness. The mobile electronic device includes a heartrate sensor, a processor, and a display. The heartrate sensor is operable to provide a heartbeat signal indicative of a heartbeat of the user. The processor is operable to: acquire a beat-to-beat interval based upon the heartbeat signal and determine a drowsiness level of the user based at least in part upon the beat-to-beat interval. The display is operable to display an indication of the drowsiness level.

10 Claims, 14 Drawing Sheets