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Kahn et al.

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(54) **HUMAN ACTIVITY MONITORING DEVICE**

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- G01B 7/00** (2006.01)
- G01C 22/00** (2006.01)
- G06F 19/00** (2006.01)
- G06F 17/40** (2006.01)

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(52) **U.S. Cl.** **702/160; 33/700; 377/1;**
377/13; 377/25; 377/24.2; 702/1; 702/127;
702/155; 702/158; 702/187; 702/189

(58) **Field of Classification Search** **33/700,**
33/701; 73/1.01, 1.37, 1.38, 1.75, 1.76, 1.77,
73/1.78, 1.79, 1.81; 377/1, 13, 15, 17, 20,
377/24, 24.1, 24.2; 702/1, 85, 97, 127, 141,
702/150, 155, 158, 160, 187, 189
See application file for complete search history.

(57) **ABSTRACT**

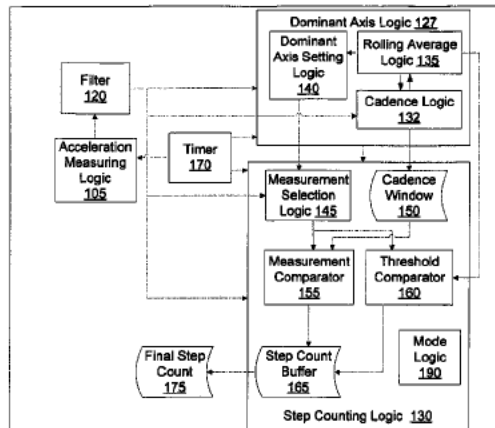
A method for monitoring human activity using an inertial
sensor includes continuously determining an orientation of
the inertial sensor, assigning a dominant axis, updating the
dominant axis as the orientation of the inertial sensor
changes, and counting periodic human motions by monitor-
ing accelerations relative to the dominant axis.

20 Claims, 9 Drawing Sheets

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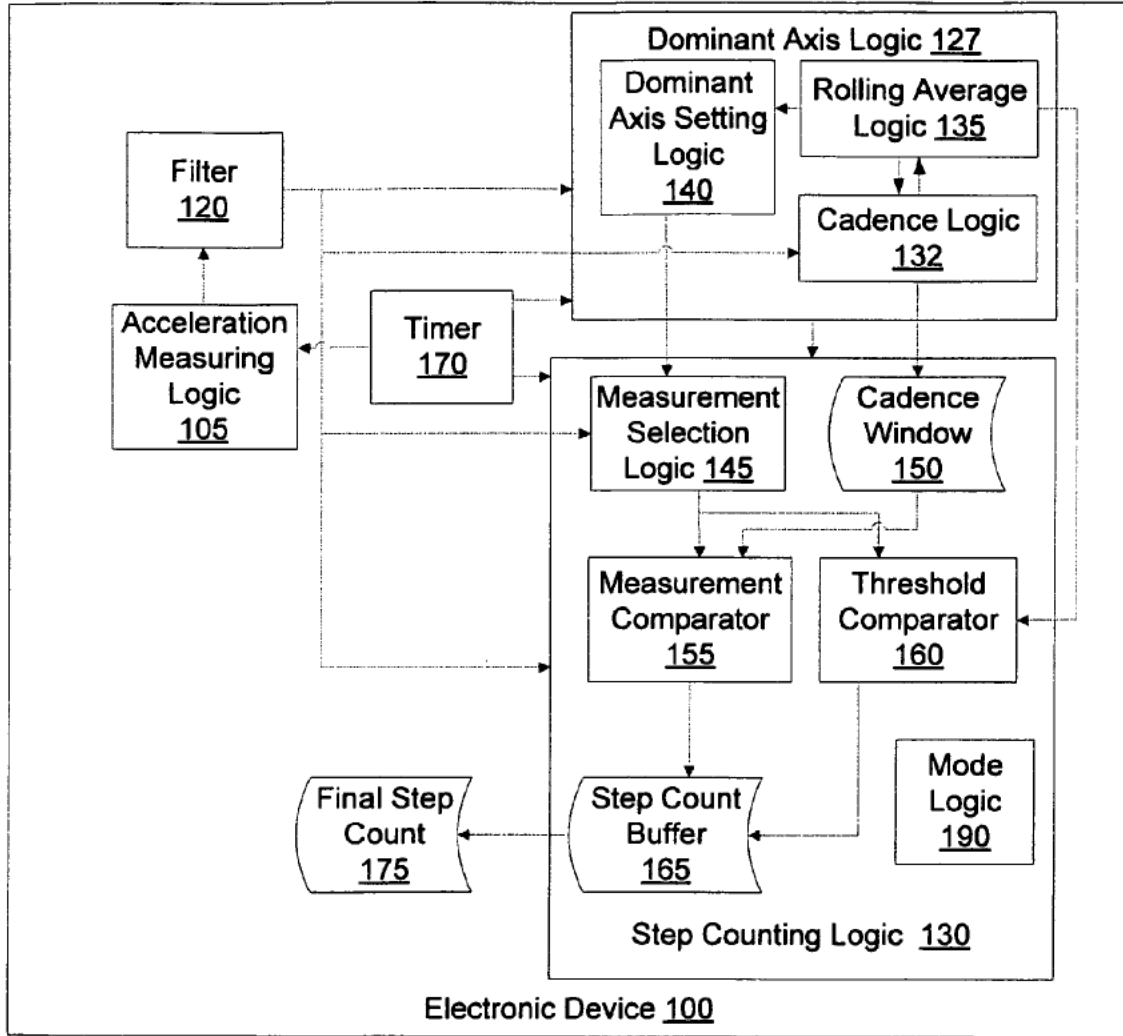


Figure 1

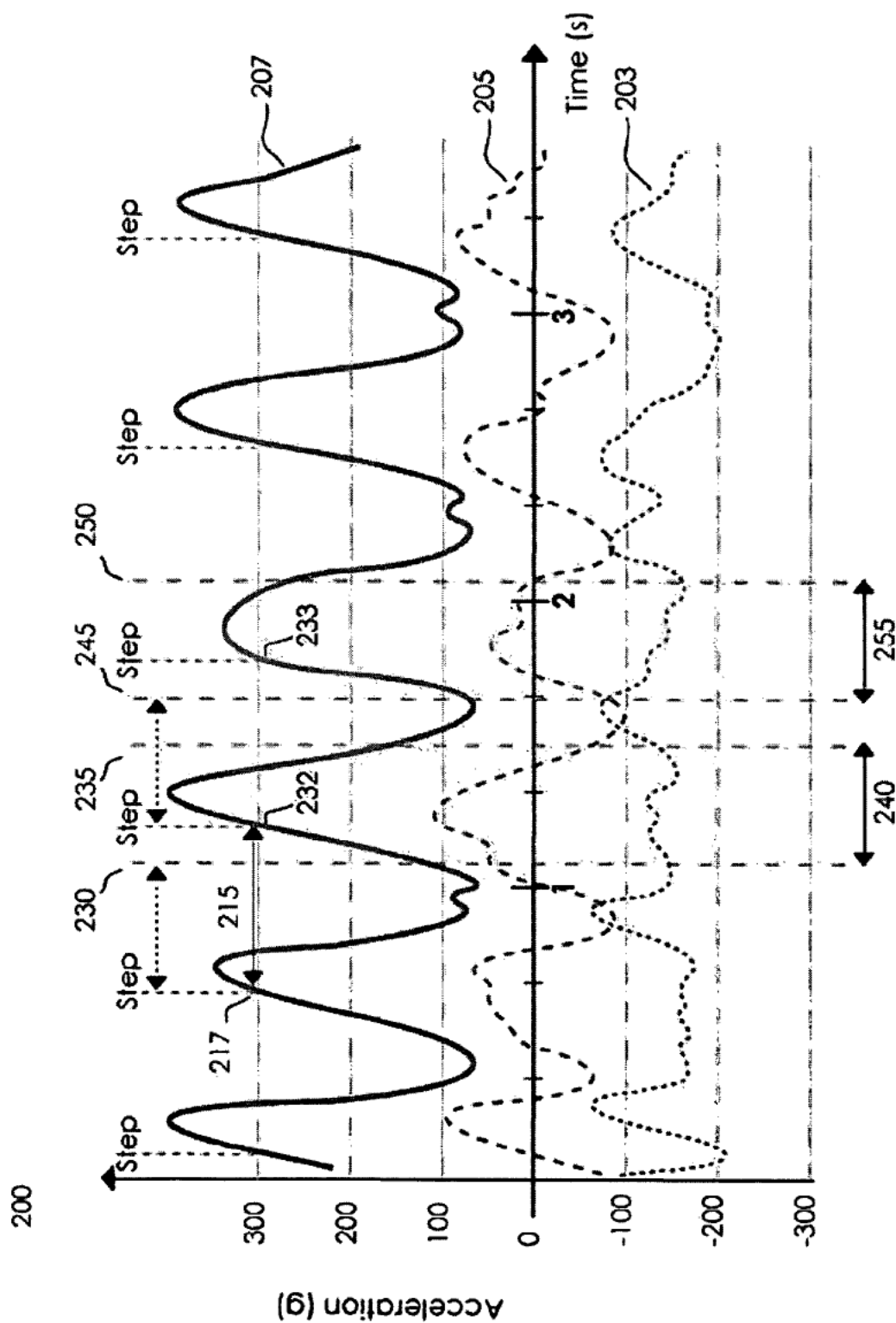


Figure 2

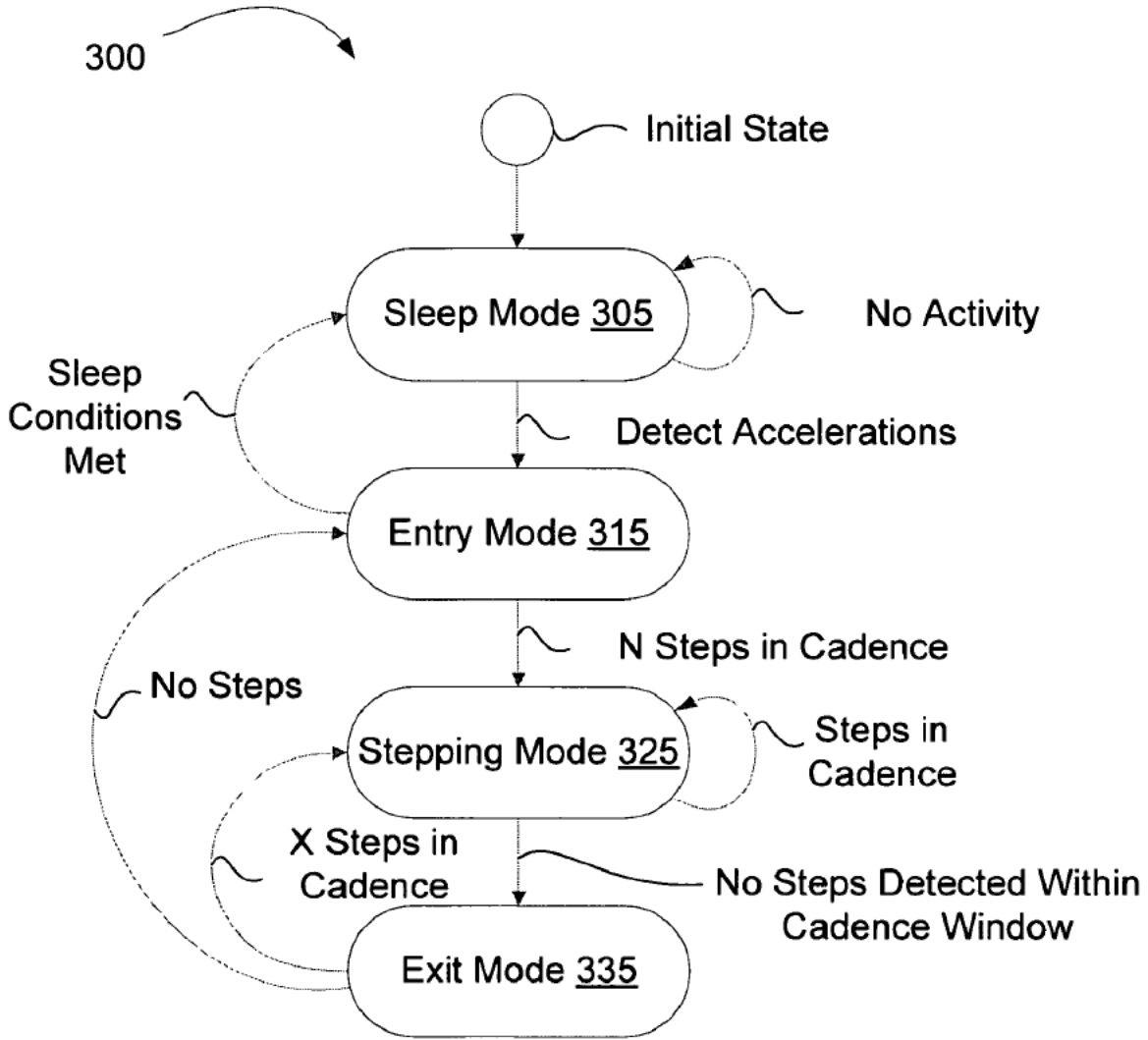


Figure 3

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