



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

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(54) **METHOD AND APPARATUS FOR MONITORING HUMAN ACTIVITY PATTERN**

(58) **Field of Classification Search** 340/539.11, 340/573.1, 539.12, 539.13, 539.15, 539.26, 340/573.4, 686.1, 689; 600/587-595
See application file for complete search history.

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(57) **ABSTRACT**

(65) **Prior Publication Data**

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A method and apparatus for monitoring a human activity pattern irrespective of the wearing position of the sensor unit by a user and a direction of the sensor unit are provided. The method for monitoring an inertia movement signal according to a movement of a user using a sensor unit attached to the user; detecting a direction of the sensor unit from the inertia movement signal; detecting a wearing location of the sensor unit by using acceleration and direction; determining the activity pattern of the user from inertia sensors; and delivering physical activity data corresponding to at least one caloric consumption, number of steps, and movement distance.

(30) **Foreign Application Priority Data**

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(51) **Int. Cl.**

G08B 1/08 (2006.01)
H04Q 7/00 (2006.01)
A61B 5/103 (2006.01)
A61B 5/117 (2006.01)

(52) **U.S. Cl.** **340/539.11; 340/573.1; 340/573.4; 340/686.1; 600/595**

17 Claims, 8 Drawing Sheets

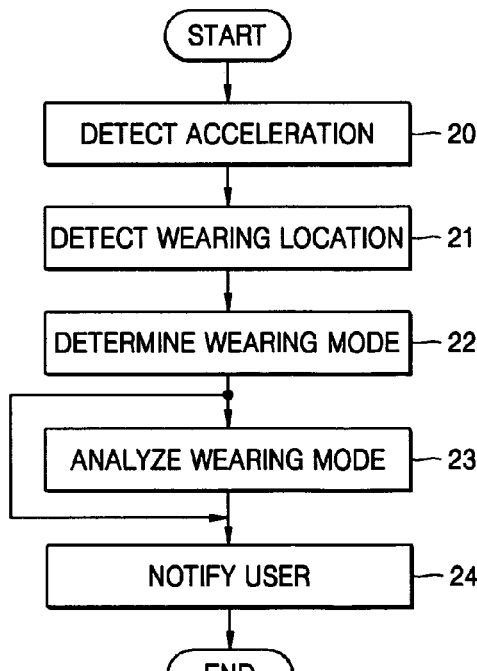


FIG. 1

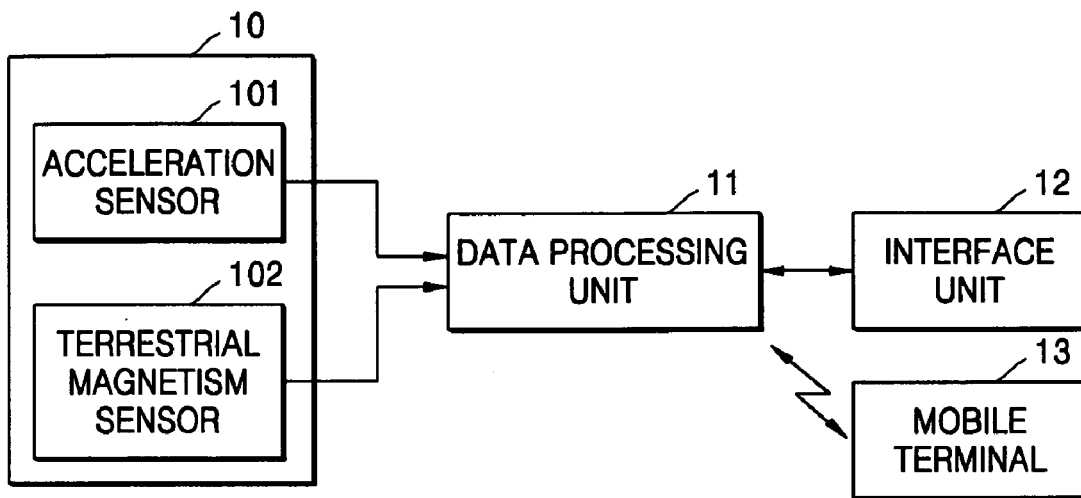


FIG. 2

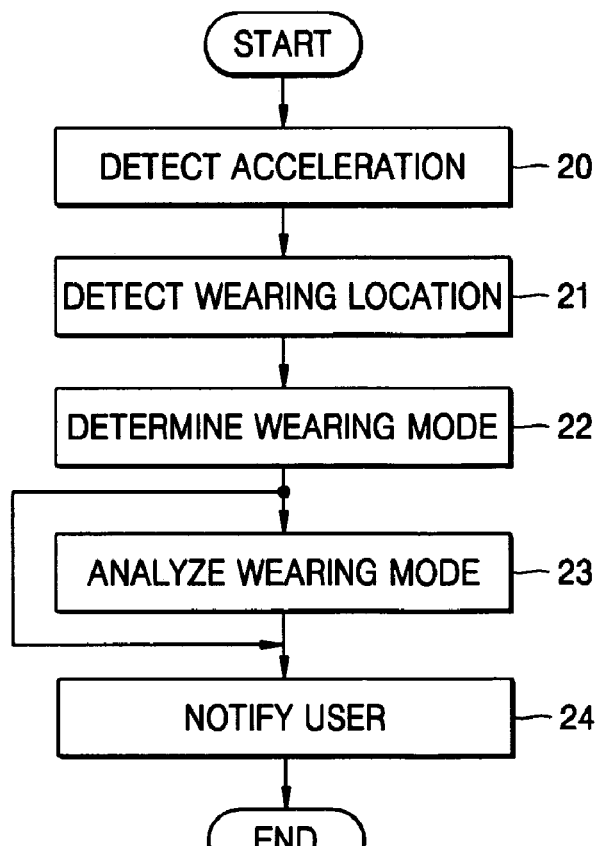


FIG. 3

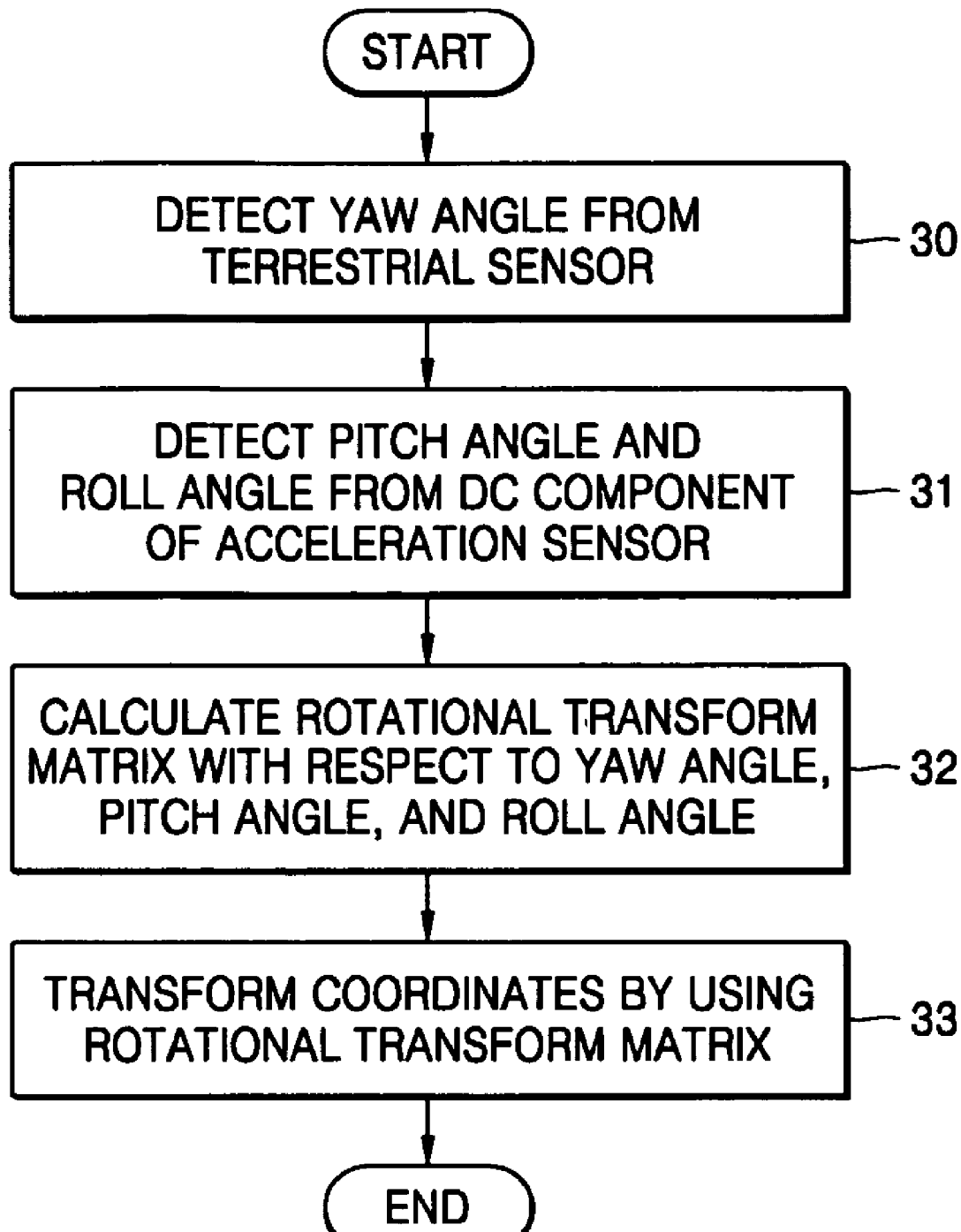


FIG. 4A

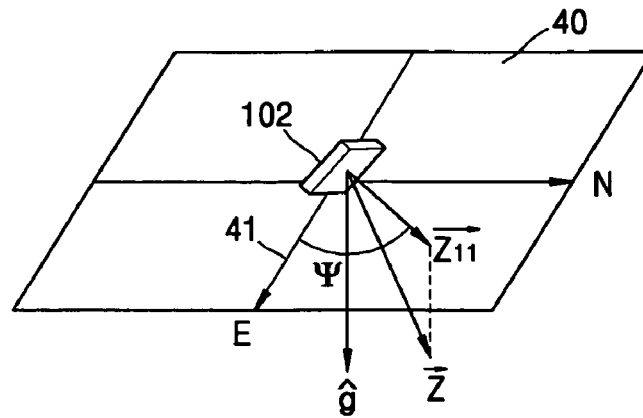


FIG. 4B

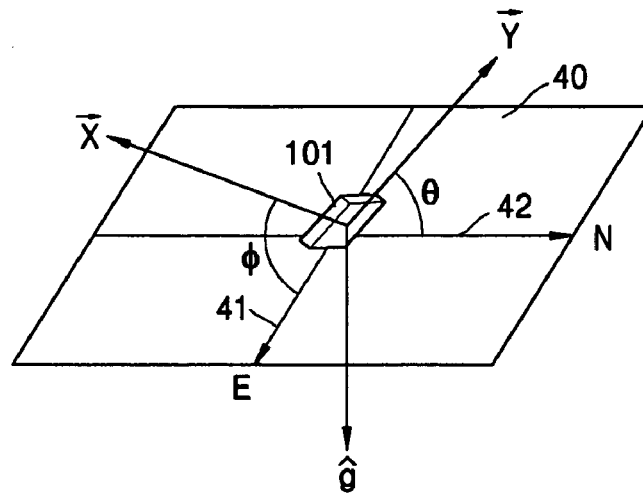


FIG. 5

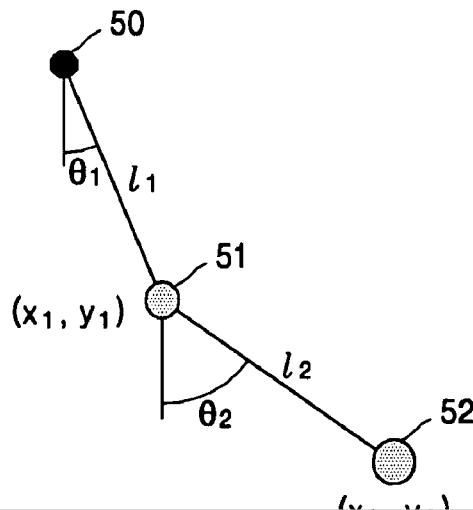


FIG. 6A

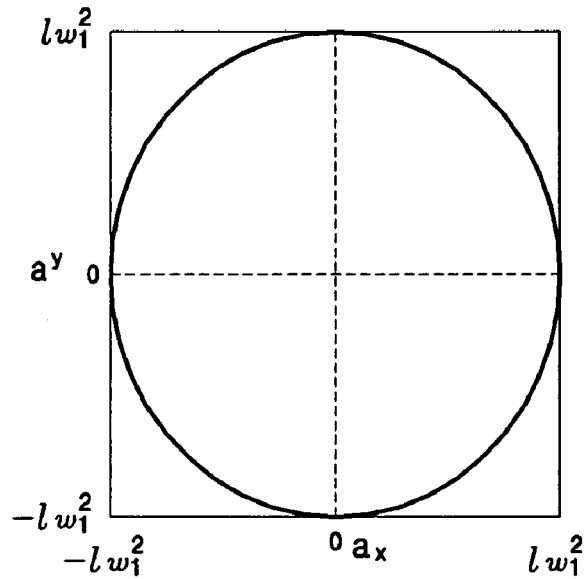
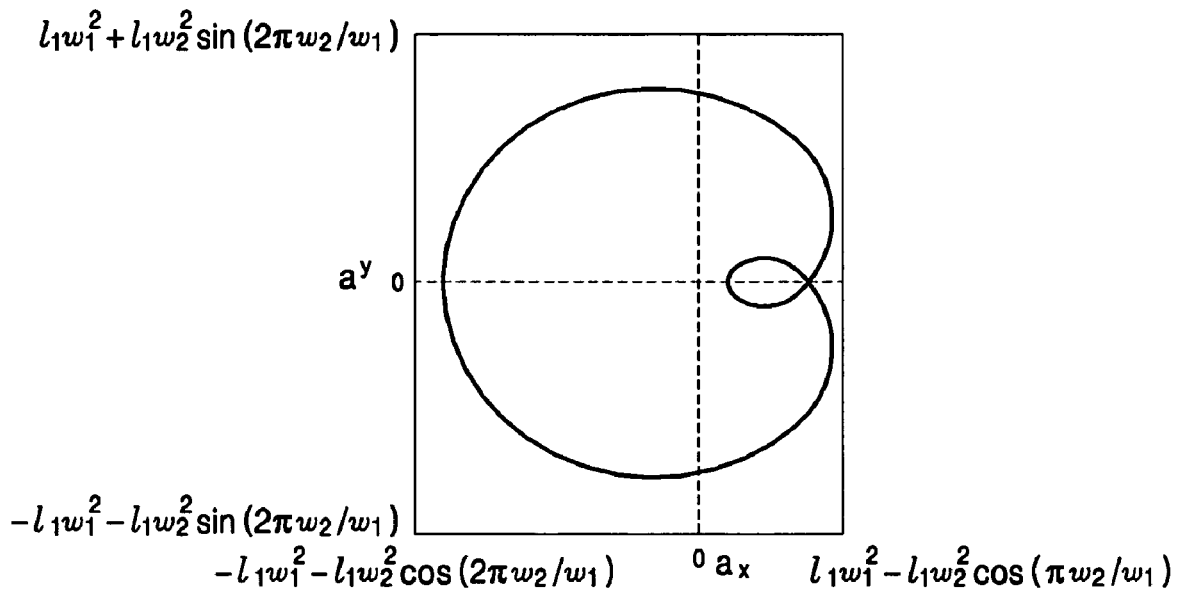


FIG. 6B



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