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**Choi et al.**

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

(75) Inventors: **Ji-hyun Choi**, Seoul (KR); **Kun-soo Shin**, Seongnam-si (KR); **Jin-sang Hwang**, Suwon-si (KR); **Hyun-tai Hwang**, Yongin-si (KR); **Wan-taek Han**, Hwasong-si (KR)

(73) Assignee: **Samsung Electronics Co., Ltd.**, Suwon-si (KR)

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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**

(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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*Primary Examiner*—Toan N Pham

(74) *Attorney, Agent, or Firm*—Sughrue Mion, PLLC

(57) **ABSTRACT**

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.

**17 Claims, 8 Drawing Sheets**

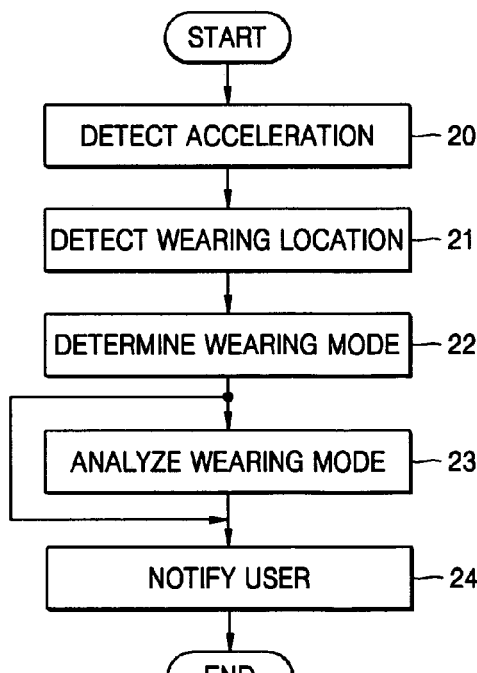


FIG. 1

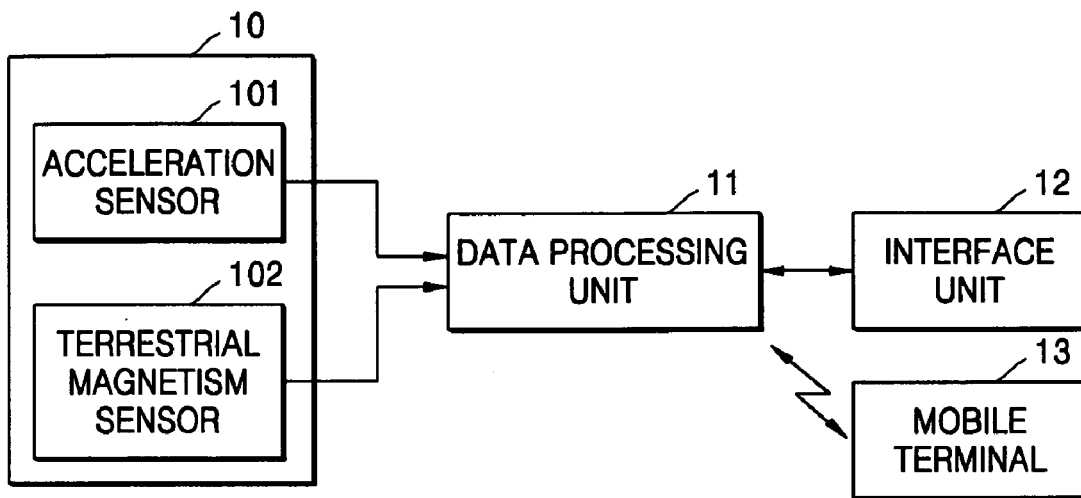
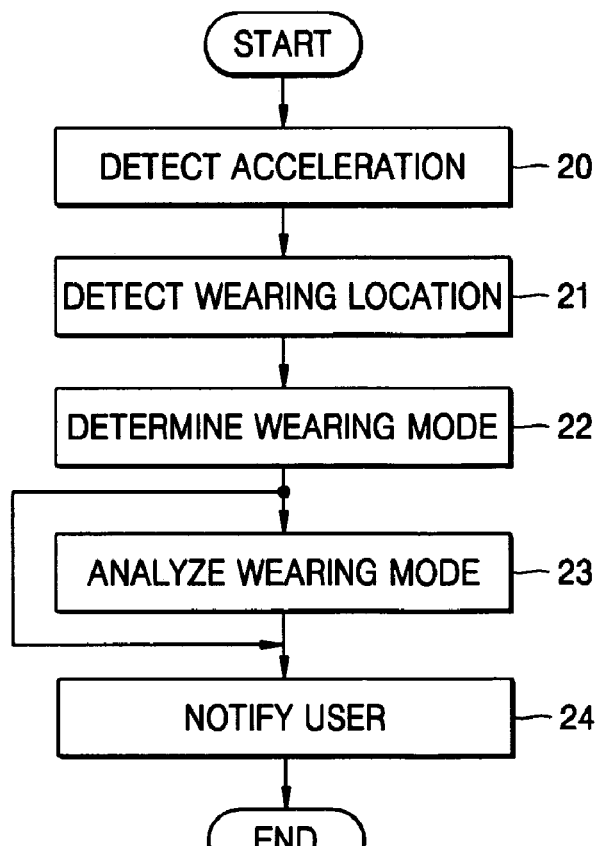


FIG. 2



## FIG. 3

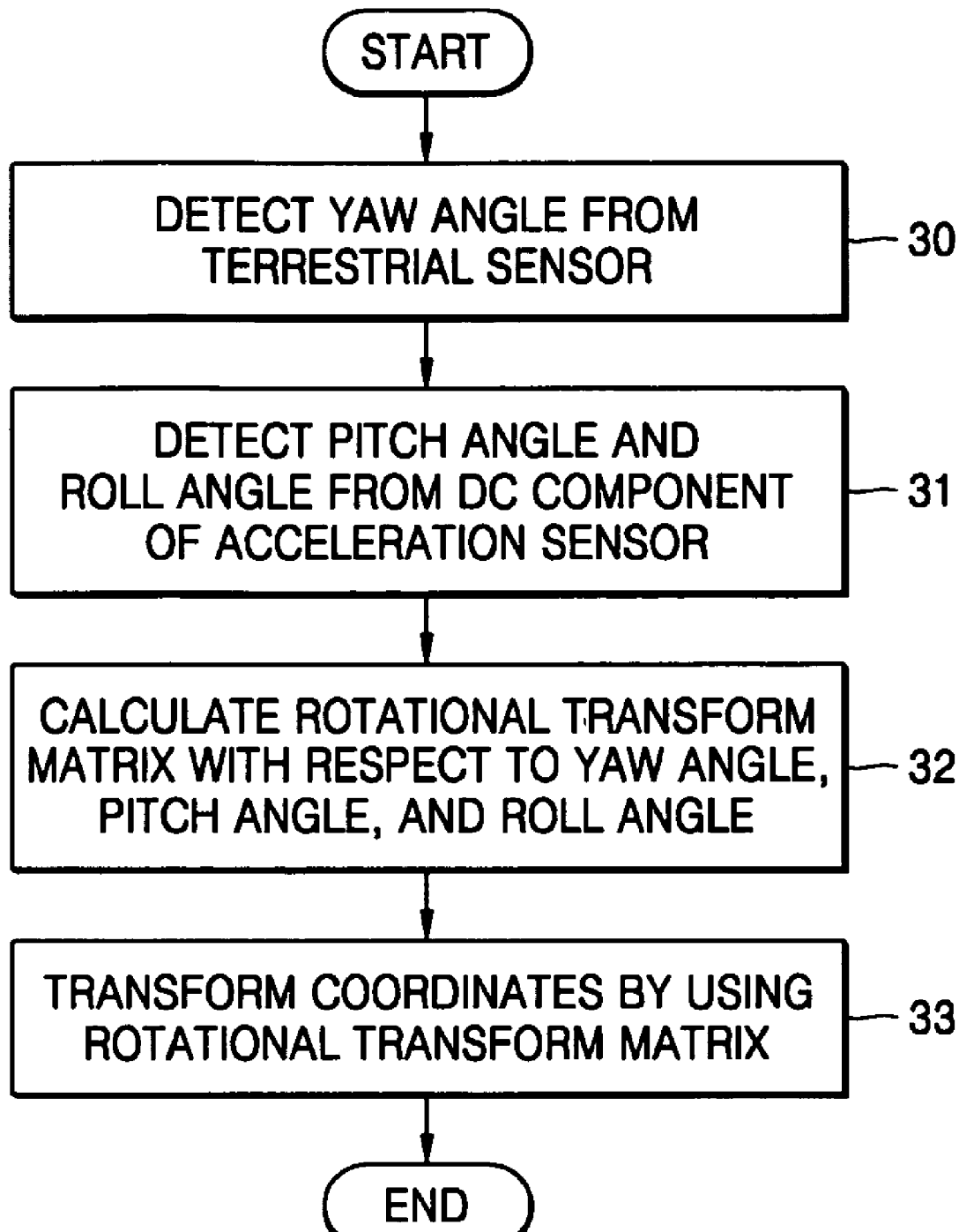


FIG. 4A

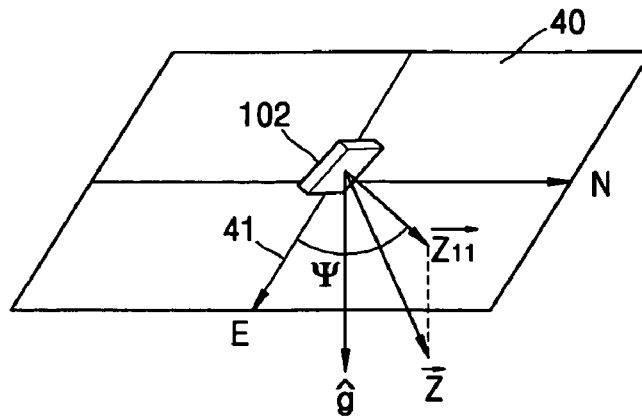


FIG. 4B

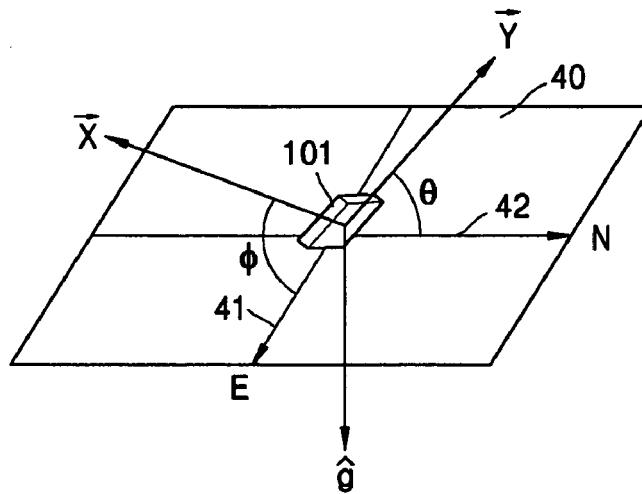


FIG. 5

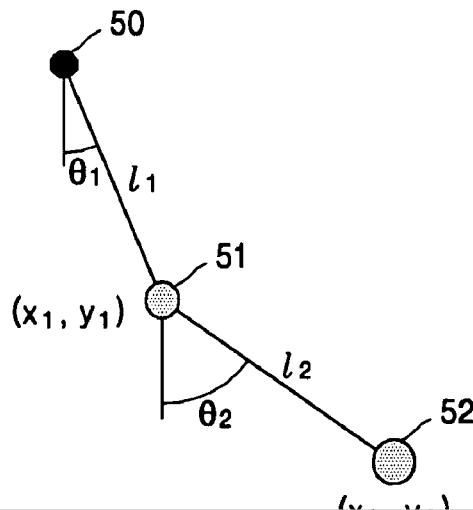


FIG. 6A

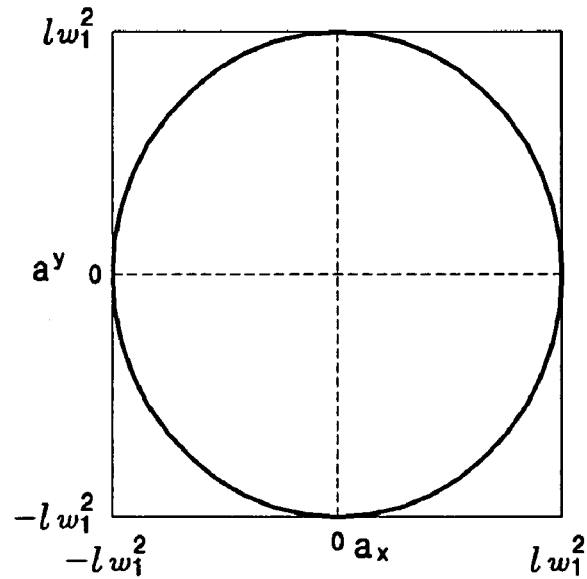
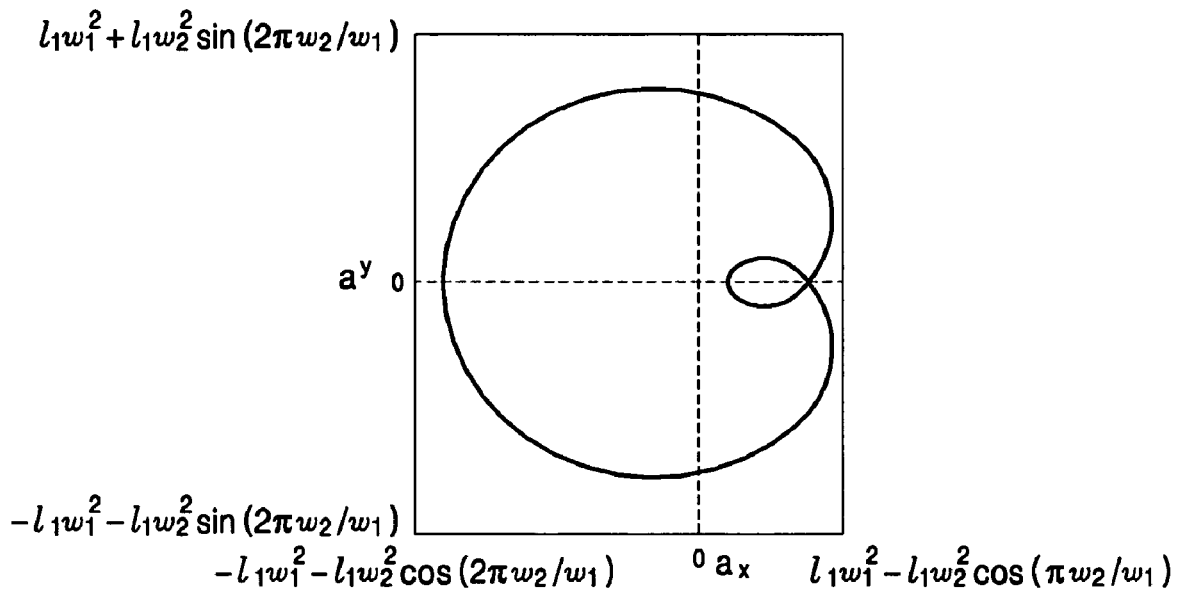


FIG. 6B



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