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(12) United States Patent

Ye et al.

(54) **3D POINTING DEVICE AND METHOD FOR** COMPENSATING MOVEMENT THEREOF

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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 218 days.
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- (22) Filed: Nov. 11, 2010

(65) **Prior Publication Data**

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Related U.S. Application Data

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- (51) Int. Cl. *G09G 5/00* (2006.01)
- (58) **Field of Classification Search** None See application file for complete search history.

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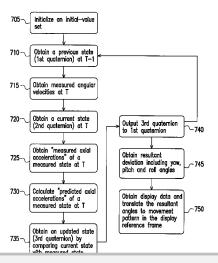
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(57) **ABSTRACT**

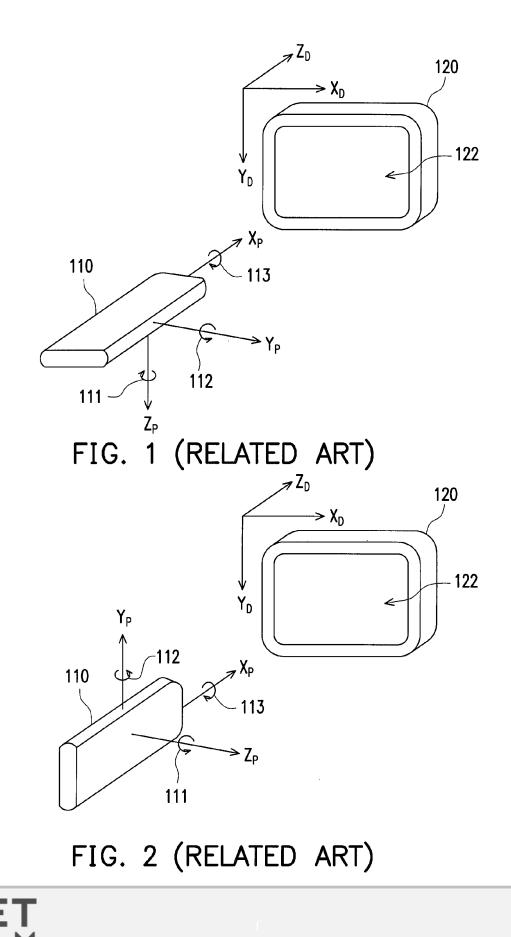
A three-dimensional (3D) pointing device capable of accurately outputting a deviation including yaw, pitch and roll angles in a 3D reference frame and preferably in an absolute manner is provided. Said 3D pointing device comprises a six-axis motion sensor module including a rotation sensor and an accelerometer, and a processing and transmitting module. The six-axis motion sensor module generates a first signal set comprising angular velocities and a second signal set comprising axial accelerations associated with said movements and rotations of the 3D pointing device in the 3D reference frame. The processing and transmitting module utilizes a comparison method to compare the first signal set with the second signal set to obtain an updated state of the six-axis motion sensor module based on a current state and a measured state thereof in order to output the resulting deviation in the 3D reference frame and preferably in an absolute manner.

19 Claims, 7 Drawing Sheets

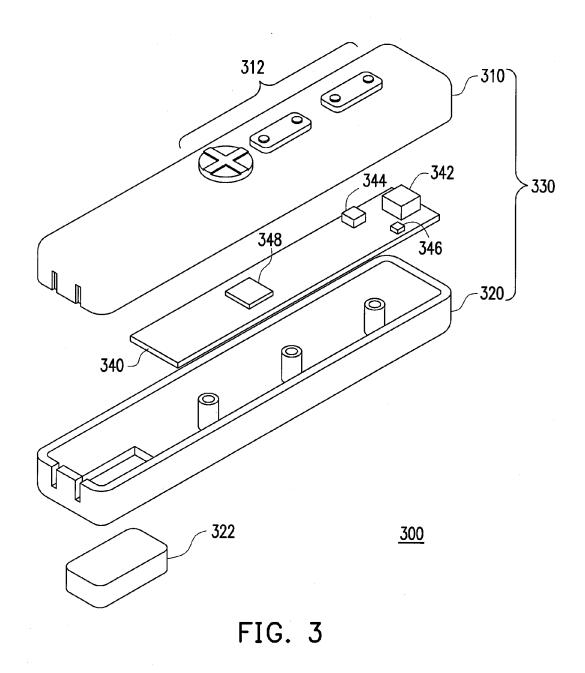


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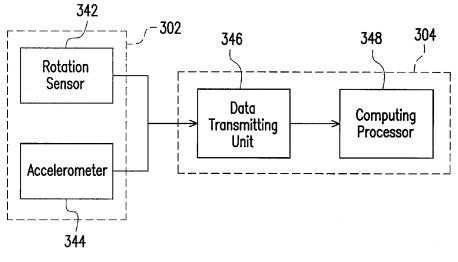
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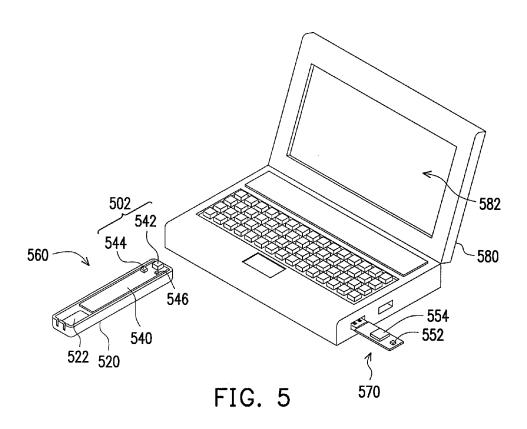
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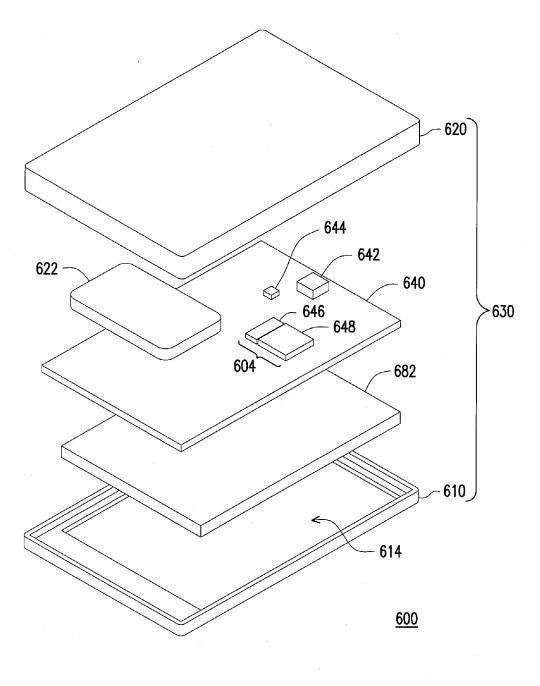


FIG. 6

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