Three-Dimensional, Non-Contacting, Angular Motion Sensor

Tech ID: 11271 / UC Case 2006-677-0

ABSTRACT

Three-dimensional non-contacting sensor for tracking the spherical motion of a body.

FULL DESCRIPTION

Researchers at the University of California, Davis have developed a real-time, three-dimensional angular motion tracking scheme that determines the absolute orientation, axis of rotation and angular speed of a body rotating about a point, which is fixed relative to the sensor.

The scheme is based on a single tri-axial fluxgate magnetometer. The algorithm takes the three-dimensional flux density measurements from the magnetometer and calculates the angular motion information at each sampling. UC Davis researchers have developed an apparatus and tested the feasibilty of this scheme, and have demonstrated the scheme's capability of non-contact angular rate sensing.

APPLICATIONS

- Ball wheel mechanism which serves as the drive train in a robust omnidirectional mobile platform
- Measure the absolute orientation, axis of rotation and angular speed of any body rotating about a fixed point such as: robotic manipulators, telescope positioning systems, head orientation measurement for virtual reality and game applications, and other systems with spherical joints
- Biomedical applications including measuring limb motion
- Devices that require velocity feedback

FEATURES/BENEFITS

- Non-contacting
- Magnetic sensing
- Real-time
- 3-D

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	7,868,610	01/11/2011	2006-677

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OTHER INFORMATION

KEYWORDS

motion sensor, motion, angular motion

CATEGORIZED AS

- **Transportation**
  - Other

RELATED CASES

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