

Title (en)

MAGNETIC SENSOR SYSTEM FOR FAST-RESPONSE, HIGH RESOLUTION, HIGH ACCURACY, THREE-DIMENSIONAL POSITION MEASUREMENTS

Title (de)

Magnetisches Sensorsystem für hochgeschwindigen hochauflösende und hochgenannDreidimensional positionsmessungen

Title (fr)

SYSTEME DE DETECTEURS MAGNETIQUES DE MESURE DE POSITIONS EN TROIS DIMENSIONS A REPONSE RAPIDE, HAUTE RESOLUTION ET HAUTE PRECISION

Publication

EP 1131597 A4 20011107 (EN)

Application

EP 99949668 A 19990923

Priority

- US 9921240 W 19990923
- US 10153498 P 19980923

Abstract (en)

[origin: WO0017603A1] The position, orientation, velocity and acceleration of remote sensors (3) is determined using magnetic fields. Multiple, arbitrarily oriented magnetic field transmitters (1) are placed in one reference frame (source reference frame), and multiple, arbitrarily oriented magnetic field receivers (3) are placed in a second reference frame (body reference frame). The spatially varying magnetic fields of the transmitters (1) in the source reference frame are sensed by the magnetic field receivers (3) in the body reference frame. A computer algorithm uses a physics-based extended Kalman filter to resolve the position, orientation, velocity and acceleration of the body relative to the source reference frame. The physics-based extended Kalman filter can accommodate the effects of metal in the source and body reference frames and thus allow the system to measure position, orientation, velocity and acceleration under conditions where eddy currents would normally hinder other magnetic position measuring systems.

IPC 1-7

G01B 7/004

IPC 8 full level

G01B 7/00 (2006.01); **G01B 7/004** (2006.01); **G01V 15/00** (2006.01)

CPC (source: EP)

G01B 7/003 (2013.01); **G01B 7/004** (2013.01); **G01V 15/00** (2013.01)

Citation (search report)

- [X] US 5767669 A 19980616 - HANSEN PER KROGH [US], et al
- [A] WO 9836236 A1 19980820 - SUPER DIMENSION LTD [IL], et al
- [A] EP 0581434 A1 19940202 - POLHEMUS INC [US]
- See references of WO 0017603A1

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

WO 0017603 A1 20000330; AU 2251400 A 20000410; EP 1131597 A1 20010912; EP 1131597 A4 20011107

DOCDB simple family (application)

US 9921240 W 19990923; AU 2251400 A 19990923; EP 99949668 A 19990923