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FILING DATE: June 08, 2005
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June 8, 2005

Attorney Docket: 09970-011002

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Presented for filing is a new continuation patent application of:

Applicant: ERIC FOXLIN

Title: TRACKING AUTO-CALIBRATION, AND MAP-BUILDING
SYSTEM

The prior application is assigned of record to InterSense, Inc.,
a Delaware corporation, by virtue of an assignment submitted to the Patent and
Trademark Office and recorded on November 13, 2003 at 014124/0825.

Enclosed are the following papers, including those required to receive a filing date
under 37 CFR §1.53(b):

	<u>Pages</u>
Specification	77
Claims	14
Abstract	1
Declaration	1
Drawings	12

Enclosures:

- Preliminary amendment, 6 pages.
- New disclosure information, including:
Information disclosure statement, 1 page.
PTO-1449, 1 page.
- Postcard.

This application is a continuation (and claims the benefit of priority under 35 USC
120) of U.S. application serial no. 10/639,242, filed August 11, 2003, which claims
the benefit of U.S. Provisional Application No. 60/402,178, filed August 9, 2002. The
disclosure of the prior application is considered part of (and is incorporated by
reference in) the disclosure of this application.

CERTIFICATE OF MAILING BY EXPRESS MAIL

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Page 2

Applicant claims small entity status. See 37 CFR 1.27.

Basic Filing Fee	\$150
Search Fee	\$250
Examination Fee	\$100
Total Filing fee	\$500

A check for the filing fee is enclosed. Please apply any other required fees or any credits to deposit account 06-1050, referencing attorney docket 09970-011002.

If this application is found to be incomplete, or if a telephone conference would otherwise be helpful, please call the undersigned at (617) 542-5070.

Kindly acknowledge receipt of this application by returning the enclosed postcard.

Please direct all correspondence to the following:

26161

PTO Customer Number

Respectfully submitted,



Rex I. Huang* for
David L. Feigenbaum, Reg. No. 30,378
Enclosures
RIH/txk

** See attached document certifying that Rex Huang has limited recognition to practice before the U.S. Patent and Trademark Office under 37 CFR § 10.9(b).*

21076751.doc

APPLICATION
FOR
UNITED STATES LETTERS PATENT

TITLE: TRACKING AUTO-CALIBRATION, AND MAP-BUILDING
SYSTEM

APPLICANT: ERIC FOXLIN

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TRACKING, AUTO-CALIBRATION, AND MAP-BUILDING SYSTEM

Cross-Reference to Related Applications

[01] This application claims the benefit of U.S. Provisional Application No. 60/402,178, filed August 9, 2002, titled "Localization, Auto-Calibration, and Map-Building," the contents of which are incorporated herein by reference.

Background

[02] This invention relates to tracking, navigation, pose estimation, localization, auto-calibration, scene modeling, structure-from-motion and/or map-building based on sensor inputs.

[03] Tracking or navigation systems often make use of measurements from sensors to aid in determining a location ("localization") or an orientation (attitude and heading) or a pose (position and orientation) of an object such as a person, a vehicle or a robot as it navigates in an environment, such as within the bounds of a building. A variety of types of sensors are available for such systems, including sensors that measure a relative location between a sensor and a target. An example of such a sensor/target combination is an acoustic emitter (target) and a microphone array (sensor) that can determine a direction of arrival of an acoustic signal broadcast from the emitter. Different types of sensors measure different aspects of the relative pose of a sensor and a target, such as a range, direction, or relative orientation. Different sensors may have different measurement characteristics that affect the mapping between the relative pose of a sensor and a target and the measurement values provided by the sensor. These characteristics can include uncertainty or noise characteristics of the measurement values.

[04] Systems have been developed that use Kalman Filtering techniques to incorporate information in sensor measurements to track the position or orientation of an object, typically also using information about the dynamic characteristics of the object. The implementation of such Kalman Filtering techniques is often complex, and typically

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