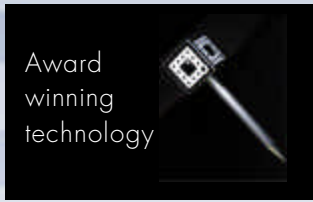




TOOL TRACKER REAL-TIME 3D LOCATION, ORIENTATION AND TRACKING



Radix Controls' Tool Tracker uses sophisticated, high speed visual tracking technology to precisely and repeatably monitor & report the position and orientation of a hand tool in three-dimensional space within a work cell.

Regardless of the size or shape of the tool that is being monitored, the tracking target can be easily mounted & provides the tracking point for Tool Tracker.

WHAT'S THE POINT?

COMPLETE ERROR PROOFING & TRACEABILITY

Radix Control's Tool Tracker was developed to address a need for error-proofing and complete traceability in a manual fastening station, but both scientists & engineers agree, it is appropriate to any assembly operation in which precise and repeatable tool, part or assembly location information is required.



EASE OF SCALABILITY

Tool Tracker systems scale easily from one single camera to any number of cameras, and support tracking any number of targets (i.e. tools, parts or assemblies) simultaneously.



INDUSTRIAL CONNECTIVITY

The technology is based upon a lightweight, easily mounted target, making it appropriate for a wide variety of tracking applications. Once implemented, it presents no space or motion constraints & is not susceptible to industrial "noise".

Tool Tracker can easily be integrated in any manufacturing cell using PC or PLC for control. It is designed for the Microsoft Windows XP operating system. Tool Tracker provides the following interfaces:

- ⌘ Ethernet
- ⌘ Discrete IO



HIGHLY REPEATABLE & ACCURATE 3D TRACKING

Provides x, y, z, yaw, pitch, roll for each tracking target

Repeatability	.5 mm*
Image processing (single camera)	10 fps

*repeatability depends on image resolution, target size and operating distance. Numbers provided are for a 1024x768 image with a target size of 4.5x7.5 cm at an operating distance of roughly 800 mm.



"OUR QUALITY DEPENDS ON THIS SYSTEM"

Ford Motor Company, Powertrain Operation, 2006

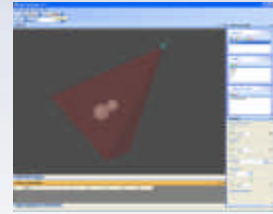
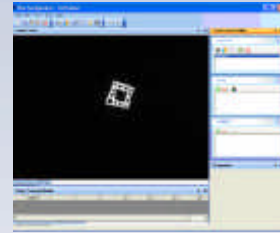
BASIC PACKAGE SELECTIONS

Tool Tracker Development Kit: The kit contains everything to get you tracking objects in a minimum of time.

The following items are included in the kit:

- (1) Computer, preloaded with operating system and Tool Tracker
- (2) Cameras, with integrated lens
- (1) Tracking target
- (1) Calibration target
- (1) CD with application software and "How To" documents

Optional: Factory-installed I/O board, additional cameras and tracking targets can be purchased as required.



TECHNOLOGY OVERVIEW

The Tool Tracker operates on black and white images acquired several times per second.

In order for the system to report results in physical units, ie mm, it needs to be calibrated. To calibrate a camera, the system takes several images of a plate with a special calibration pattern on it. The system calibrates the camera's focal length, principle point, and its distortion parameters. The calibration computation takes a few seconds (generally less than five) per camera.

The software first detects the presence of one or more targets in the field of view and applies analytical techniques to calculate location and orientation of all targets in the field of view. The system can group multiple cameras into a global coordinate system. The target defines its own coordinate system, and it is the origin of the target coordinate system that is tracked by the system. The software automatically computes the Object Tracking Point (OTP) offset for the object, i.e. the point on the object at which the "work" is done. The system can calculate the OTP via calibration; as an alternative, the option for entering the object tracking point offset manually is available.



FOR MORE INFORMATION, CALL 1.877.467.2349 OR VISIT WWW.RADIXCONTROLS.COM