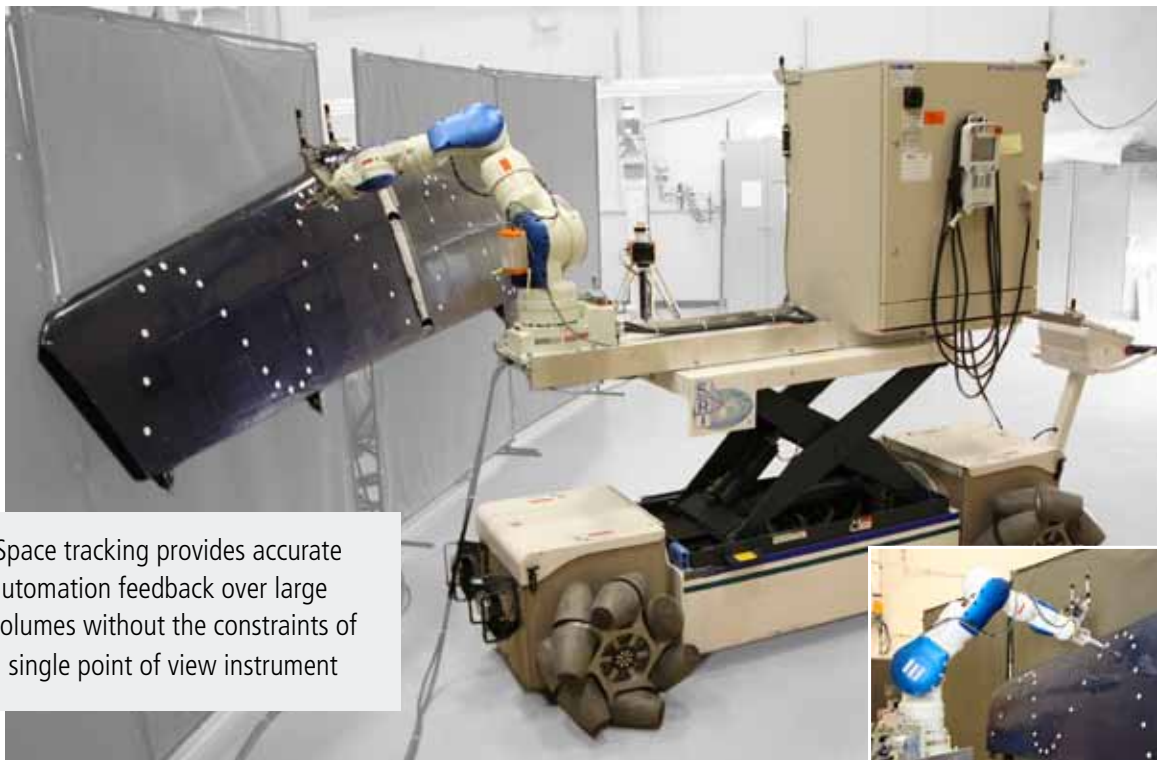


Innovative optical tracking with unmatched capabilities

Until recently, many applications requiring dynamic tracking have needed to accept significantly lower accuracies or make tradeoffs in usability. This includes limitations in working volume, restrictions on the number of objects and parts that can be tracked simultaneously, and programmatic difficulties in integration. iSpace solves these problems by providing full 6DOF multi sensor tracking capability that is unsurpassed in accuracy, scalability, and flexibility.



iSpace tracking provides accurate automation feedback over large volumes without the constraints of a single point of view instrument

Mobile Manipulator using iGPS for positional feedback developed by SwRI

Benefits at a glance

- Large volumes: transmitter range of 55m, (volumes larger than 100m x 100m)
- High accuracy: <0.3mm dynamic uncertainty
- 6 Degree of Freedom tracking: with flexible sensor deployment options
- Multiple objects: track multiple parts, vehicles, and robots simultaneously
- Track objects relative to each other or referenced to a common coordinate system

System Overview

- Transmitters establish the measurement volume – Create a measurement zone of any size by surrounding it with transmitters. Extend your measurement zone by adding additional transmitters, now or in the future
- Setup is quick and easy – Simply walk a bundle tool around the volume or install permanent reference sensors for automatic calibration & continuous system monitoring
- Measure anywhere where 3 transmitters are visible
- Dynamic Tracking Kits provide 6 DOF feedback for live positioning, dynamic referencing, logging or control of automation systems
- Align to parts and perform feature inspection with a variety of probe options
- Directly interface with popular metrology & analysis software or collect data directly using the SDK

iSpace enables more accurate research and enhances automation



Outdoor autonomous vehicle tracking for guidance system validation

iSpace systems enable 6DOF tracking & trajectory logging at speeds up to 10m/s with unparalleled accuracy



Enhance Research with Accurate Model & Vehicle Tracking

- Tracking in 6DOF at high velocities and low uncertainty in large volumes provides baseline reference data for model research
- Benchmark automated control and tracking systems such as RTLS, RTK GPS, vision systems, and other custom control systems



Improve Manufacturing with Adaptive Robot Control & AGV Tracking

- Enhance robot accuracy by continuously providing path corrections
- Improve quality by ensuring automated machining systems are in the correct location before an operation takes place
- Track multiple AGVs simultaneously in a common coordinate system
- Turn an entire facility into a metrology environment, increasing manufacturing precision, flexibility and productivity



Advance Final Assembly Processes with Dynamic Part Tracking

- Live reporting of control surface positions in 6DOF during Major Component Assembly
- Simultaneous feedback from multiple points of interest improves process speed and accuracy

Improve Quality with Device Localization

- Enable 6DOF tracking and localizing of third party devices such as Laser Projectors and NDT inspection systems
- Locate devices directly in part coordinate system



Specifications

Specifications

Range (transmitter – sensor)	2-55m (6' to 180')
3D Point Uncertainty ¹	< 0.2mm (0.008") + 10ppm
Length Uncertainty	< 0.2mm (0.008") over 3x length of scale
Dynamic 3D Point Uncertainty ²	< 0.3mm (0.012") + 10ppm
Operating Temperature	0°C to 40°C (32°F to 104°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)
Relative Humidity	10% to 90% (non-condensing)

¹ Performance given for system bundled with a 2m length of scale. Scale factor doubles when using a 1m length of scale.

² Performance given for sensor velocities < 0.5m/s. For optimum performance it is recommended to keep a separation of > 5m between the sensors and the transmitters.

Software

In combination with the iGPS software platform Surveyor a client application or front end software package provides the control interface or analysis tools to complete the system. Choose from:

- A custom developed Client using the Surveyor SDK
- NI LabVIEW
- NRK Spatial Analyzer



Standard Configuration & Options



Standard Setup for Tracking in a 30m x 30m volume	6 Transmitters 1 2m Scalebar for system setup 1 i6 Probe for part alignments & measuring 2 i5is DTKs for 6DOF object tracking 1 Deployable Workstation including Surveyor Software
Additional Transmitters	Can be added to an existing system at any time to expand the measurement volume
Dynamic Tracking Kit - i5 Integrated Sensors	Dual i5is kit allowing for live 6 Degree of Freedom tracking of parts and objects. Fast and easy to deploy with quick clamp locking system & automatic configuration. Simply attach the i5is to known locations on the part or perform a simple part alignment to begin tracking the objects native coordinate system.
Dynamic Tracking Kit – Single Sensor	Four single sensor kit allowing for live 6 Degree of Freedom tracking of parts and objects. Ideal for integrating sensors directly into an object when sensor size and weight is critical.
i6 Probe	Ergonomic hand held inspection tool. Features multiple function buttons, measurement feedback and a variety of tips for precise geometric inspection. Used to align the DTKs to an object's coordinate system when tooling points are not available.
i6 Long Reach Probe	Dual purpose setup and inspection tool. Comes with a variety of tip extensions and probe tips for performing facility layouts and inspecting large objects.



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