

# How Optical Tracking Works

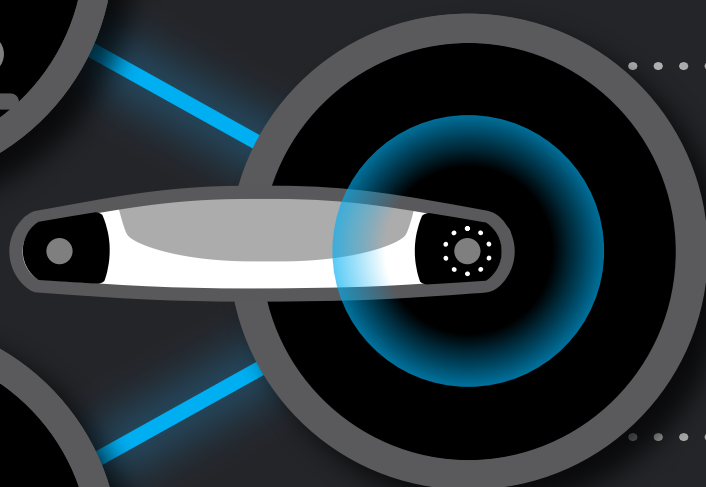
## NDI'S PASSIVE REFLECTIVE MARKER SPHERES AND POLARIS OPTICAL TRACKER

Similar in concept to vehicle GPS navigation, tracking data can be used to visualize a surgical instrument's location relative to patient image sets, and to plan and navigate the instrument's path to the target/treatment site.

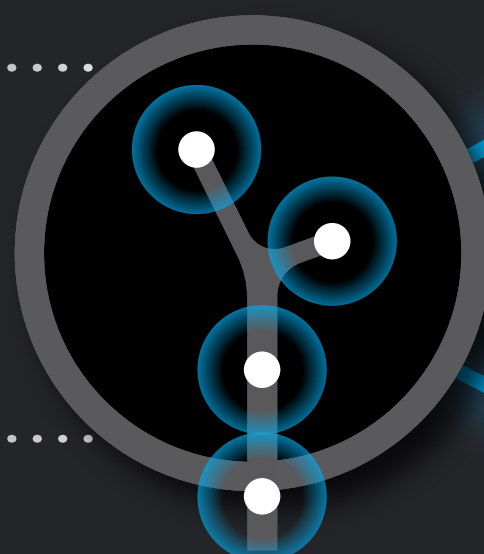
1. Markers can be attached to OEM Surgical Instruments.



2. The Polaris optical tracker floods the measurement volume with infrared (IR) light.



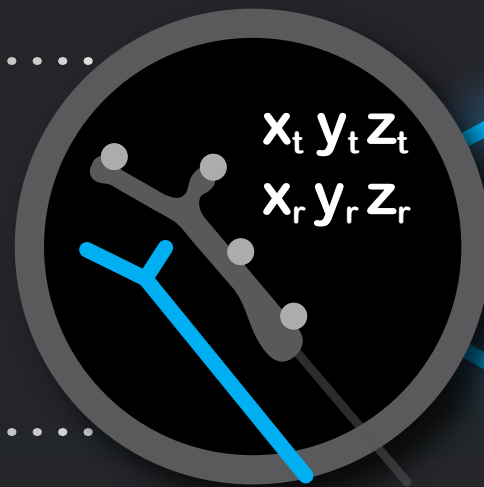
3. This light is reflected from the markers back to IR sensors on the Polaris optical tracker.



4. The points where the light intersects are used to triangulate the markers' 3D (x,y,z) coordinates within the measurement volume.



5. Coordinate data are mapped to the associated instrument and used to calculate the transformations (poses) of the instrument.

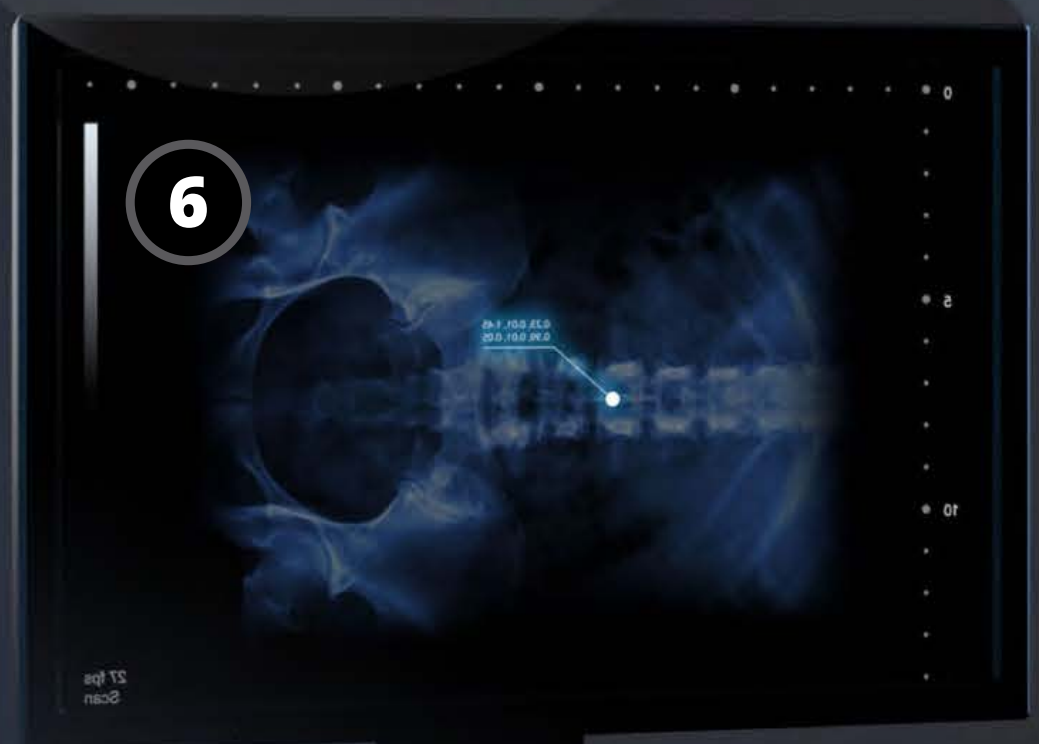


6. Tracking data are communicated to the host application for real-time visualization of instruments relative to patient image sets.



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