The object whose position shall be tracked is equipped with markers. Markers can be light reflectors ("passive markers", e.g. retroreflectors) or light emitters ("active markers", e.g. LEDs). To also measure the orientation of a body, several (>= 3) of these markers have to be arranged at a known geometry.

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Tracking cameras scan a certain volume and detect the light that comes from the markers. Their images are processed to identify and calculate potential marker positions (in image coordinates, 2DOF) with high accuracy; a mean accuracy of 0.04 pixels is standard in ART tracking systems.

These 2DOF data are combined to calculate 3DOF positions of single markers or 6DOF poses of rigid arrangements of several markers ("rigid bodies" or "targets"). Some additional information about the tracking system is necessary for this, which has to be collected in calibration processes beforehand: position and orientation of the tracking cameras, as well as the geometry of rigid bodies (i.e. the positions of the markers within a body).

The result of each measurement are coordinates that describe the position of the markers, and hence the position and orientation of the body carrying the markers.

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