

Ultra Wideband Radar Tagless Indoor Tracking System

This system tracks activity indoors, using pulsed-RF radar rather than tags. A number of compact pulsed-RF Ultra Wideband (UWB) radar sensors are spread throughout the coverage area and their locations surveyed. These devices participate in a time division network; with both monostatic and bistatic radar scans produced in each timeslot. Each scan indicates RF reflectivity versus time delay from pulse trigger.

These scans are motion-filtered to enhance activity and attenuate static reflectors. A detection algorithm then isolates time delays with high dynamic activity, which is mapped to 2D circles (monostatic) or ellipses (bistatic) on a basestation coordinate system. After an association layer trims stray intersections an optimal recursive tracking filter is applied.