Abstract

In this project, a revised configuration of the Cricket indoor positioning system is used to enable coordinated robot interaction. The position of a Cricket client is determined by sending RF and ultrasonic signals to beacons on the ceiling of the lab and measuring the time taken for ultrasonic signals to be received. Robots determine their coordinates using this system and share this information to perform a designated task. The robots demonstrate good performance in rendezvous and pursuit tasks using instantaneous position values. To improve position estimates when noise is present in Cricket measurements, a Kalman filter is proposed.