

基于相位叠加的Cricket系统信标节点识别方法

作者：沈梦婷, 杨学友, 吴军

单位：天津大学精密仪器与光电子工程学院

基金项目：国家高技术研究发展计划(863计划)

摘要：

对于Cricket室内超声波定位系统，能否正确识别不同信标节点发射的信号对接收器的定位至关重要。本文根据压电陶瓷的振动机制和声波在空气中的传播特性，推导出超声波发射器和接收器的振动方程，提出了一种基于超声驱动信号相位叠加的方法识别不同信标节点发出的超声信号。从原理验证、软件仿真、实验验证三个方面证明了叠加识别法可以有效地识别Cricket系统中不同的信标节点。

关键词：超声波；Cricket系统；相位叠加；压电陶瓷振动；信标节点

A Method of Identifying Beacons of Cricket System Based on Phase Superposition

Author's Name:

Institution:

Abstract:

For the cricket location-support system, it's essential to recognize the different beacons. According to the vibration mechanism of the transmitter and the propagation characteristics of the sound in air, this paper has derived the equations of the vibration of the ultrasonic transmitter and receiver, and then proposed a method based on the reversal superimposition of the driving signals to identify different beacons. Finally, from three aspects which are the principle verification, software simulation, and experimental validation, it proves that the superimposed recognition method can effectively identify the signals by the different transmitters in the cricket location-support system.

Keywords: Ultrasonic; Cricket System; Phase Superimposition; Piezoelectric Ceramic Vibration; Beacons

投稿时间：2013-05-02

[查看pdf文件](#)