Abstract

This paper proposes a source localization scheme using random arrays of Wireless Sensor Networks (WSN). A Total Least Square (TLS) estimator is proposed which improves the result of the location of source node. Using a relatively new Direction of Arrival (DOA) estimation technique Space Division Multiple Access (SDMA) receiver the proposed solution is able to perform localization in a multipath environment. The propose scheme considers both Line of
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Sight (LOS) and Non Line of Sight (NLOS) signals to perform the localization with the TLS estimator which is efficient than a simple Least Square (LS) estimator. Simulation results are included to demonstrate that the proposed solution provides an improved estimate by exploiting the NLOS information, SDMA receiver and using TLS estimator.

Reference

- J. Li, J. Conan, and S. Pierre, “Mobile Station Location Estimation for MIMO


**Index Terms**

Computer Science  
Wireless

**Key words**

Localization  
wireless sensor networks  
DOA  
TDOA

SDMA receiver

Least square

Total Least Square

Singular Value Decomposition

Estimator

MUSIC algorithm