



MOBILE LOCALIZATION AND TRACKING WITH LOS AND NLOS IDENTIFICATION IN WIRELESS SENSOR NETWORKS

Y. K. Benkouider and M. Keche

Electronic Department, LSI Laboratory
University of Science and Technology USTO-MB
El Mnaouar, BP 1505, Bir El Djir 31000
Oran, Algeria
Emails: yasmine.benkouider@univ-usto.dz
yasmine_byk@ymail.com

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Abstract- This paper addresses the problem of mobile sensor localization and tracking in an obstructed environment. To solve this problem, a combination of three approaches is proposed: a nonlinear Kalman Filter to estimate the mobile position, a sub filter used jointly with the nonlinear filter to estimate the bias due to the Non-Line Of Sight (NLOS) effect and a low complexity method for Line Of Sight (LOS) and NLOS identification. Based on hypothesis testing, this method discriminates between the LOS and NLOS situations using a sequence of estimated biases. Simulation results show that the proposed method provides good positioning accuracy.

Index terms: Localization, Tracking, Wireless Sensor Network, Non Line of Sight, Divided Difference Kalman Filter, Unscented Kalman Filter, Bias estimation, Hypothesis testing.