Hybrid TDOA/AOA Geometrical Positioning Schemes for MS Location Estimation

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Abstract

    To achieve more accurate measurements of the MS location, it is possible to integrate many kinds of
schemes. In this paper we combine time difference of arrival (TDOA) from three base stations (BSs)
and angle of arrival (AOA) information at the serving BS to give location estimation of the MS. Based
on the non-line-of-sight (NLOS) environments and the knowledge of NLOS error statistics is not
obtained, the proposed methods utilize the TDOA hyperbolas and the AOA line to find all the possible
intersections to locate the mobile station (MS). Different NLOS models were used to evaluate the
proposed methods. Simulation results that the proposed methods provide better location accuracy
comparing with Taylor series algorithm (TSA) and least square (LS) method