

Abstract—In this paper, 3D target tracking in wireless sensor network (WSN) is considered. Unlike other published work, this paper addresses the problem of estimating locations of different targets in 3D environment. Each sensor makes  $T$  observations to get local decisions. These decisions are modulated using on-off keying (OOK) and sent to a central node called fusion center. The fusion center detects all decisions sent from all sensors to process them in order to estimate the targets locations using maximum likelihood estimator. This approach generalizes the existing work in the literature about a single target localization if we considered that the number of targets equal one. The corresponding Cramer-Rao lower bound (CRLB) has been also derived. Furthermore, simulation results are provided and discussed.