**Abstract**

Localization is a significant part in the area of Wireless Sensor Networks (WSNs) with the purpose of has introduced important study significance between academia and research community. The task of establishing substantial manages of sensor nodes in WSNs is identified as localization or positioning and is a key issue in today’s communication systems toward approximation the position of starting point of events. On the other hand, localization is issue in huge scale 3-D WSNs appropriate toward the uneven topology, for example holes in the path, of the network. Recently, spatial convex node detection method is introduced by means of Convex Coverage Support Vector Machine (CCSVM) toward handle this issue. However in CCSVM classifier, Optimization the Number of Convex Pieces becomes extremely hard task. It turns into very hard designed for although minimizing or maximizing a quantity of known criteria or property in the computational geometry. Node Weight Swallow Swarm Optimization Convex Node Segmentation (NWS2CNS) is introduced in this work for handling optimization of number of convex pieces. NWS2CNS is proposed to minimize the number of convex pieces during network segmentation in huge scale 3-D WSNs. NWS2CNS is proposed for increasing higher location accuracy which is obtained by means of using a node inertia weight toward correctly computes the acceleration coefficients. High speed of convergence, solving local extremum, and increased localization accuracy are the advantages of proposed NWS2CNS algorithm. In NWS2CNS algorithm, segmental planes are able to be categorized by means of two steps: inside boundary region and outside boundary region. Once these two steps are optimized subsequently we expand the network segmentation correctly by means of decreased localization error. The proposed localization algorithm moreover is appropriate a new 3-D coordinate transformation algorithm, which helps decreases the errors proposed by means of coordinate integration among subnetworks and increase the localization correctness.