

Direction-Based Localization Schemes for Wireless Sensor Networks

Location awareness is an attractive research issue in the wireless sensor network (WSN). However, such information may be unavailable due to the constraints in energy, computation, or terrain, and several applications can tolerate the diverse level of accuracy in such geographic information. Thus, this paper presents a direction-based localization scheme, DLS, for each sensor node to determine its direction rather than its absolute location. DLS not only uses the anchor deployment strategy to benefit sensor direction learning, but also employs the dual-direction coordination system to precisely position the sensors close to the boundaries. We evaluate DLS via simulations in terms of various direction numbers, node numbers, and radio ranges. Experimental results validate the practicability of DLS, and show that DLS can effectively achieve direction estimation.