

# Location and Position Estimation in Wireless Sensor Networks

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## **ABSTRACT**

*A wireless sensor network consists of small sensor nodes each of which comprises of a processing device, small amount of memory, battery and radio transceiver for communication. The sensor nodes are autonomous and spatially distributed in an area of investigation. Certain applications and protocols of wireless sensor networks require that the sensor nodes should be aware of their position relative to the sensor network. For it to be significant and to be of value, the data such as temperature, humidity, etc., gathered by sensor nodes must be ascribed to the relative position from where it was collected. For this to happen, the sensor nodes must be aware of their relative positions. Traditional location finding solutions, such as Global Positioning System, are not feasible for wireless sensor nodes due to multiple reasons. Therefore, new methods, techniques and algorithms need to be developed to solve the problem of location and position estimation of wireless sensor nodes. A number of algorithms and techniques based upon different characteristics and properties of sensor nodes have already been proposed for this purpose. This chapter would discuss the basic principles and techniques used in the localization algorithms, categories of these algorithms and also take a more closer look at a few of the representative localization algorithms.*