

عنوان مقاله:

On improving APIT algorithm for better localization in WSN

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خلاصه مقاله:

In Wireless Sensor Networks (WSNs), localization algorithms could be range-based or range-free. The Approximate Point in Triangle (APIT) is a range-free approach. We propose modification of the APIT algorithm and refer as modified-APIT. We select suitable triangles with appropriate distance between anchors to reduce PIT test errors (edge effect and non-uniform placement of neighbours) in APIT algorithm. To reduce the computational load and avoid useless anchors selection, we propose to segment the application area to four non-overlapping and four overlapping sub-regions. Our results show that the modified-APIT has better estimation's performance of localization for different sizes of network for both grid and random deployments in terms of average error and time requirement. For increasing the accuracy of localization and reduction of computation time, every sub-region should contain minimum 5 anchors. Variations of the size of a network and radio communication radius of anchors affect the value of average error and time requirement. To have more accurate location estimation, 5 to 10 anchors per sub-region are effective in modified-APIT.

کلمات کلیدی:

WSN, Localization, APIT, Anchor, Coverage

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