Gradient-Driven Target Acquisition in Mobile Wireless Sensor Networks

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Gradient-Driven Target Acquisition in Mobile Wireless Sensor Networks

Key words:

Wireless Sensor Network, Navigation, Localization, Probabilistic Model, Rescue

Goal:

Direct mobile objects(e.g. Robots) toward a stationary targets(e.g. wounded people waits for help) along a shortest path. Less energy consumption.

Application:

Tracking, surveillance, environment monitoring, search and rescuing mission

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Individual Prediction Model:

Make all decision by itself

Collaborative Prediction Model:

Collect the information of all the nodes, then draw a panorama, send back to every nodes.

Core technique:

(1) Value-prediction problem: Received Signal Strength Indicator(RSSI)
(2) Distance Prediction Model: multidimensional Gaussian distribution function over two attributes, trust interval and RSSI
(3) Signal Strength Distribution Prediction Model: refine the RSSI distribution Model