

## Barrier Coverage With Wireless Sensors Iti Algorithmik Ii

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### Barrier Coverage With Wireless Sensors

While weak barrier-coverage with high probability guarantees the detection of intruders as they cross a barrier of stealthy sensors, a sensor network providing strong barrier-coverage with high probability (at the expense of more sensors) guarantees the detection of all intruders crossing a barrier of sensors, even when the sensors are not stealthy.

### Barrier Coverage With Wireless Sensors

Barrier coverage is an important issue in many wireless sensor network applications, such as border intrusion detection and environmental safety monitoring.

### Barrier coverage with wireless sensors | Request PDF

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### Barrier coverage with wireless sensors | Proceedings of ...

before it crosses the barrier of wireless sensors, we say the network provides barrier coverage. In this paper, we develop theoretical foundations for barrier coverage. We propose efficient algorithms using which one can quickly determine, after deploying the sensors, whether the deployment region is barrier covered. Next, we establish the optimal deploy-

### Barrier Coverage With Wireless Sensors - Memphis

Barrier coverage is a critical issue in wireless sensor networks (WSNs) for security applications, which aims to detect intruders attempting to penetrate protected areas. However, it is difficult to achieve desired barrier coverage after initial random deployment of sensors because their locations cannot be controlled or predicted. In

### Barrier Coverage in Wireless Sensor Networks

BARRIER COVERAGE WITH WIRELESS SENSOR NETWORKS Mohsen Eftekhari Hesari A thesis In the Department of Computer Science & Software Engineering Presented in Partial Fulfillment of the Requirements For the Degree of Doctor of Philosophy (Computer Science) at Concordia University Montréel, Québec, Canada April 2014 c Mohsen Eftekhari Hesari, 2014

### BARRIER COVERAGE WITH WIRELESS SENSOR NETWORKS

Barrier coverage is one of the most important issues for various sensor network applications, such as national border control, critical resource protection, security surveillance, and intruder detection. 1,2 In these applications, the barrier coverage of a sensor network characterizes its capacity to detect intruders that attempt to cross the region of interest. The conventional research of barrier coverage mainly focused on traditional sensors which assume that the sensor has an omnidirectional sensing range ...

### Strong barrier coverage of directional sensor networks ...

Recently, the barrier-coverage of wireless sensor network received huge attention thanks to the important applications such as border protection. In practice, sensor nodes are subject to intermittent failure to detect objects within its sensing range due to many reasons. Therefore, a barrier of sensor nodes may exhibit temporal loopholes.

### Fortifying Barrier-coverage of Wireless Sensor Network ...

Barrier coverage is a critical issue in wireless sensor networks deployed in security applications (e.g., border protection), whose performance strongly depends on the locations of sensor nodes. Existing works on barrier coverage typically assume that sensor nodes have accurate location information, which is not reasonable or practical for many real sensor networks.

### Achieving location error tolerant barrier coverage for ...

A set of barrier-covers with corresponding schedule forms a non-penetrable barrier-coverage of sensors only if there are no potential-breach-points between any two alternating barrier-covers in the set. The "non-penetrable barrier-coverage" is equivalent to the "non-crossing barrier-coverage". Definition 4 (crossing barrier-covers).

### Maximum lifetime dependable barrier-coverage in wireless ...

Barrier coverage is a critical issue in wireless sensor networks (WSNs) for security applications, which however cannot be guaranteed to be formed after initial random deployment of sensors.

### Cost-effective barrier coverage formation in heterogeneous ...

If a sensor network guarantees that every penetrating object will be detected by at least  $\epsilon$  distinct sensors before it crosses the barrier of wireless sensors, we say the network provides  $\epsilon$ -barrier coverage. In this paper, we develop theoretical foundations for  $\epsilon$ -barrier coverage.

### CiteSeerX — Barrier coverage with wireless sensors

To address this problem, a dynamic barrier coverage (DBC) method combining inspection robot and wireless sensor network (WSN) is proposed to realize a low-cost, energy-saving and dynamic smart grid-oriented sensing system based on mobile wireless sensor network.

**Dynamic Barrier Coverage in a Wireless Sensor Network for ...**

Barrier coverage is a critical issue in wireless sensor networks (WSNs) for security applications, which aims to detect intruders attempting to penetrate protected areas. However, it is difficult to achieve desired barrier coverage after initial random deployment of sensors because their locations cannot be controlled or predicted.

**"Barrier Coverage in Wireless Sensor Networks" by Zhibo Wang**

The main purpose of using barrier coverage is to monitor the borders of a specific area against the intruders that are trying to penetrate this critical area by ensuring the total coverage with a low cost and extending the lifetime of the network, many solutions have been proposed in the literature in order to solve the coverage problem in wireless sensor networks, which became a vital field of research.

**Optimal barrier coverage for critical area surveillance ...**

Abstract: Barrier coverage is an important issue in wireless sensor networks, which guarantees to detect any intruder attempting to cross a barrier or penetrating a protected region monitored by sensors.

**Minimum (k )-angle barrier coverage in wireless camera ...**

Barrier coverage has been widely used to detect intrusions in wireless sensor networks (WSNs). It can fulfill the monitoring task while extending the lifetime of the network. Though barrier coverage in WSNs has been intensively studied in recent years, previous research failed to consider the problem of intrusion in

**Achieving Crossed Strong Barrier Coverage in Wireless ...**

barrier coverage with high probability when sensors are deployed randomly. We introduced two notions of probabilistic barrier coverage in a belt region - weak and strong barrier coverage. While weak barrier-coverage with high probability guarantees the detection of intruders as they cross a barrier of stealthy sensors, a sensor network

**Barrier Coverage - Computer Science - The University of ...**

Abstract—A subset of sensors in wireless sensor networks provides barrier-coverage over an area of interest if the sensor nodes are dividing the area into two regions such that any object moving from one region to another is guaranteed to be detected by a sensor.

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