Manage the Data from Indoor Spaces: Models, Indexes & Query Processing

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Overview

Aims

- To give a brief review introduction to *indoor data management techniques*.
- To review a series of works in this field, including their proposed *models*, *indexes* and *algorithms*.
- To discuss how to bring those advanced theoretical contents into practice.

About This Work...

Probabilistic Threshold k Nearest Neighbor Queries over Moving Objects in Symbolic Indoor Space. [4]
B. Yang, H. Lu, and C. S. Jensen.

- Published in year 2010 at the *EDBT* conference.
- *Minimal Indoor Walking Distance*(MIWD) along with algorithms and data structures are proposed for distance computing and storage.
- Effective object indexing structures, also capture the uncertainty of object locations.
- On this foundation, Probabilistic threshold kNN (PTkNN) query is studied.

Motivation

- Indoor positioning makes it possible to support interesting queries over large populations of moving objects.
  - shopping mall, airports, office buildings
  - kNN queries over indoor moving objects enables the detection of approaching potential threats at sensitive locations in a subway system
- Existing kNN techniques in spatial and spatialtemporal databases are inapplicable in indoor spaces.
  - complex entities and topologies
  - indoor positioning techniques differ fundamentally from outdoor GPS, low sampling frequency and accuracy

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The End. Thanks :)