

Simulating People and Objects in the RFID Ecosystem

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Goal: Simulate RFID tags moving within an arbitrary RFID deployment

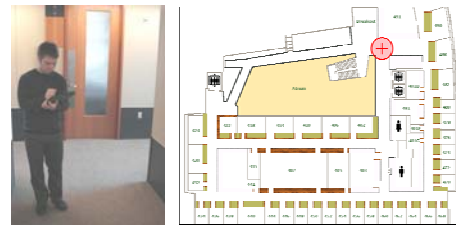


Uses of the Simulator

- o Experimentation
 - o Simulate different deployment parameters
 - o Simulate different levels of noise and errors
- o Test and debug
 - o Testing alternative system designs
 - o Tracing and reproducing bugs
- o Performance Measurement
 - o Evaluate performance in a various scenarios

Ground Truth Collection Tool

- o Ground truth traces are location + time
- o Collected with special tablet-based software
- o Collector walks with tablet, tracks own location
- o Software records location + time as XML trace

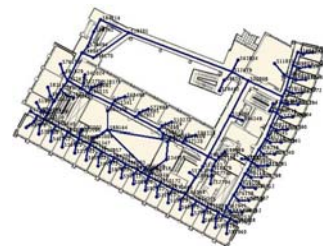


Simulation Modes

- o Trace mode
 - o Accepts and re-runs traces as input
- o "Random Walk" mode
 - o Number of tags is input
 - o Simulator randomly moves tags at each step
- o "Random Path" mode
 - o Tags and paths (start point, end point) input
 - o Tags move along path found with A* search

Voronoi Graph

- o Space is discretized using a Voronoi graph



- o Diagram is accepted as input
- o Tags move along edges of graph