

# Using Top-Down Information in Semantic Mapping

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# Research Question

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How can top-down semantic context knowledge help basic object recognition?



- 3D laser scanner & camera data
- context knowledge: typical object size, position and spatial relations
- tasks: map objects in environment, plan & execute actions

# System Architecture

- 1 planning layer
  - plans robot actions
  - implementation: HTN planner
- 2 global concept layer
  - represents objects, aggregates and places
  - implementation: Description Logic ontology
- 3 local context layer
  - generates prior prob. of expected objects
  - implementation: Bayesian Network
- 4 object recognition layer
  - models environment geometry, generates object hypotheses

