Multiple View Based Object Recognition (Unsupervised learning using Web Semantic)

Delight

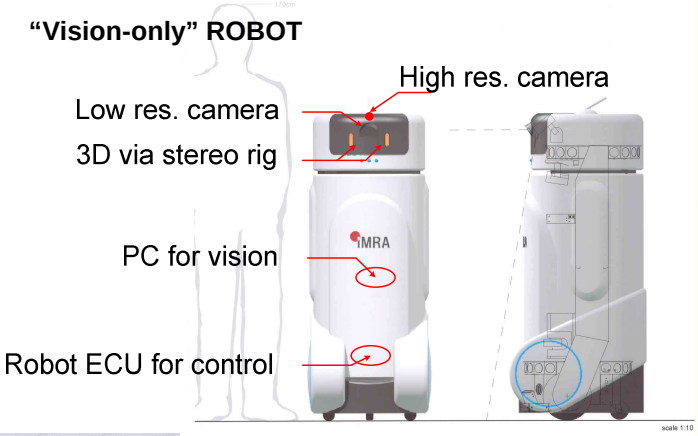
Fully autonomous robot that finds any objects for daily assistance
Daily driving assistance for collision avoidance

Features

❖ **Functions of the "Vision-Only" Robot:**

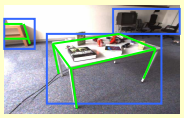
- Web Crawling for unsupervised learning
- Object recognition via multiple view combination
- Collision-free exploration in unknown environment
- Navigation curiosity based on scene reasoning

"Vision-only" ROBOT



Approach

❖ **Object Recognition**



Probability map of obstacles based on their size and color

Passive exploration: make 3d + 2d obstacle map (1)

Multiple views for each particular region of interest

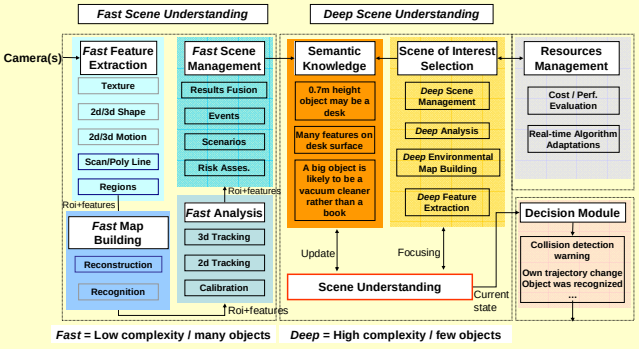
Regions of Interest

Active exploration: make multiple views of obstacles (2)

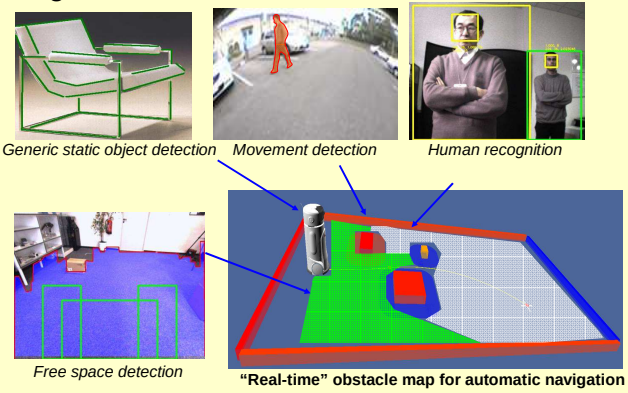
Automatic Selection of Training Samples → Offline db >10000 classes

Fast/Deep (*) Recognition ↔ Panoramic Matching (3)

(*) Fast/Deep scene understanding architecture

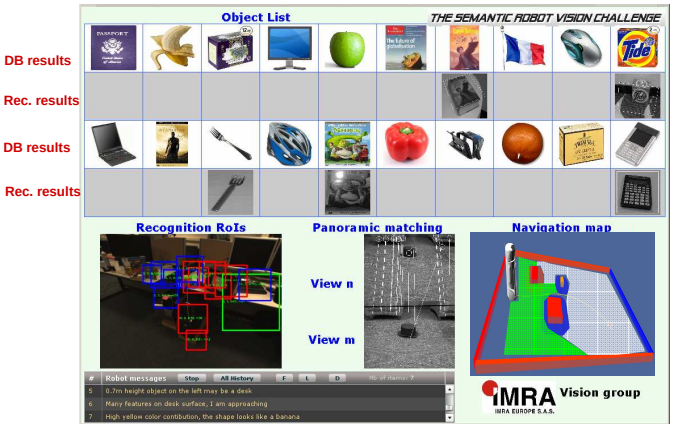


❖ **Navigation**



Current performance

❖ **90% success in automatic retrieval of internet images**
❖ **Known object and generic object recognition**



More details will be given during the demo & the workshop (26 & 27th/June)

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