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Abstract:

The Institute has research groups in the areas of Kinematics and Robot Design; Perception and Manipulation; Mobile Robotics and Intelligent Systems; and Automatic Control.

The mobile robotics group performs basic and applied research to endow mobile robots and ubiquitous computing devices the necessary skills to aid humans in everyday life activities. These skills range from pure perceptual activities such as tracking, recognition or situation awareness to motion skills, such as localization, mapping, autonomous navigation, path planning or exploration.

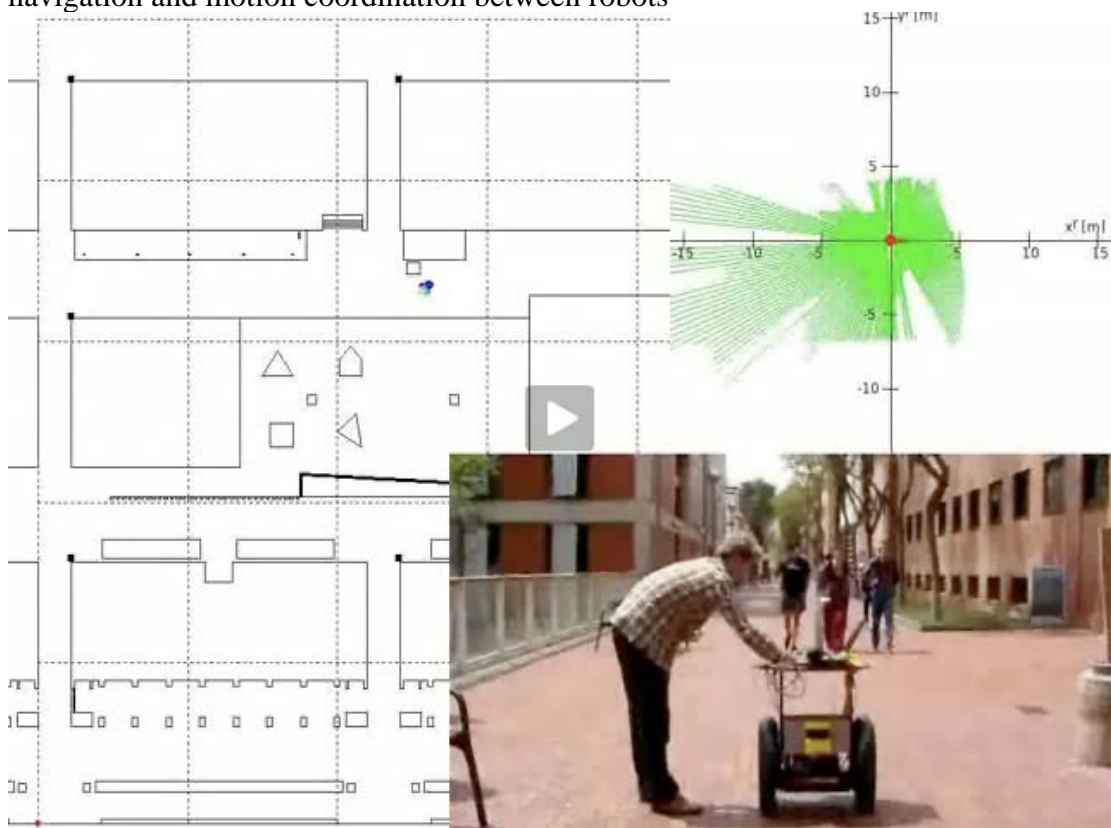
Detailed research information:

Current research efforts focus on the design and development of a cognitive networked robot architecture that in a cooperative way interacts with human beings and the environment for tasks of guidance, assistance, transportation of goods, and surveillance in urban areas. This robot architecture integrates cooperating urban robots, intelligent sensors (video cameras, acoustic sensors, etc.), intelligent devices (PDA, mobile telephones, etc.) and communications.

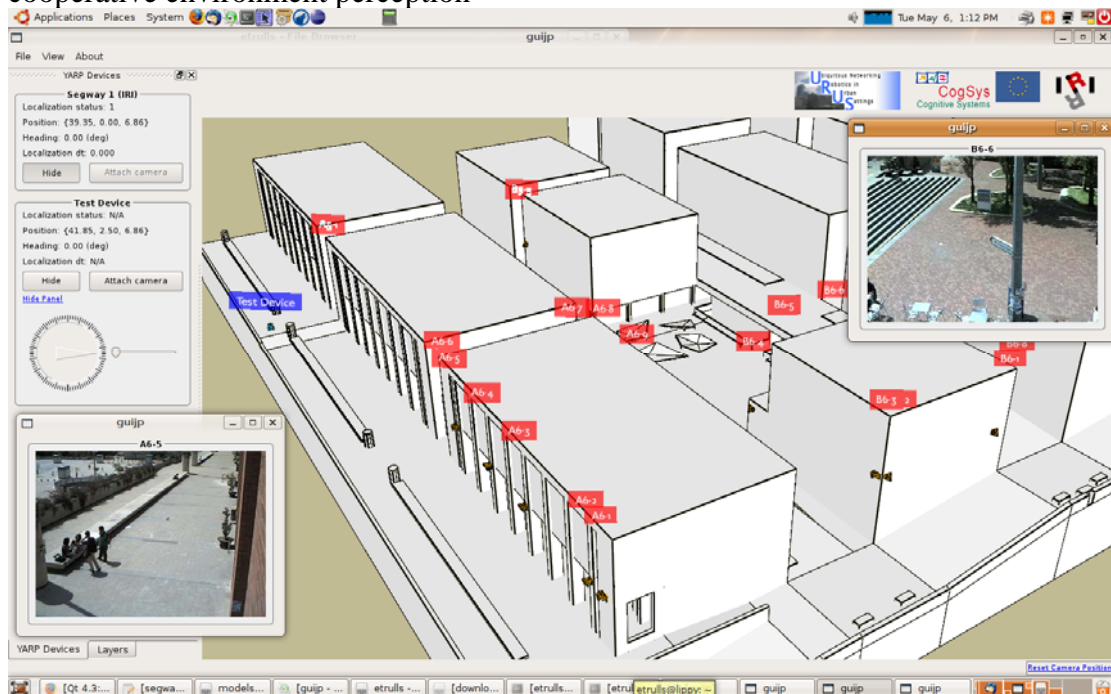


The main scientific and technological challenges addressed in the project are:

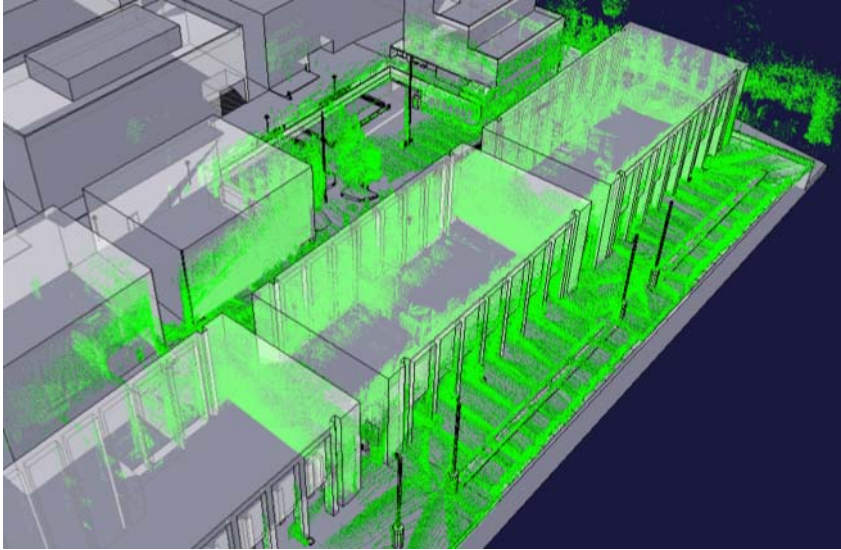
- navigation and motion coordination between robots



- cooperative environment perception



- cooperative map building and updating



- task negotiation within cooperative systems
- human-robot interaction
- and wireless communication strategies between users (mobile phones, PDAs), the environment (cameras, acoustic sensors, etc.), and the robots.