



URBANO: Autonomous Robots Integration in Society, by Using New Technologies

Data ...

Keywords: Autonomous Systems
Interactive Robots
Reactive Navigation
Sensor Fusion
Perception
Web Interfaces
Speech Technology



Funded by: Ministry of Science and Technology

Partners: UPM-DISAM, UPM-GTH, CACSA

Goal ...

Development of a tele-presence system for customized access to public sites, and fluent interaction with information and other citizens present. To improve integration in society of techniques related with automatic control, by using new information society technologies.

Gallery ...

The pictures show the *Science Museum Principe Felipe* of Valencia, manager by the *City of Arts and Sciences* (CACSA), as well as URBANO robot guiding a tour inside the museum.





Description ...

The goal of the project is the development of a tele-presence system for customized access to public sites, and fluent interaction with information and other citizens present. This could allow to improve integration in society of information society technologies related with automatic control (intelligent control, autonomous robot navigation, software engineering), by using new information technologies (internet protocols, web interfaces and speech) to easy a friendly communication with the citizen.

The system is composed of an artificial body (mobile robot) with certain degree of intelligence (autonomy), with which it is possible to interact through internet and in person, being able to be operated through natural language. The target users of the project are: citizens with special requirements, needed of social attention, business persons which for economy or time reasons prefer to follow a virtual visit, and public and private companies, or cities as a whole, that want to disseminate their cultural, educational or scientific baggage. In the field of speech interaction, the projects develop new research lines, not previously foreseen, to improve human-robot interaction in the on-site or remote visit with automatic assistance.

Implementation ...

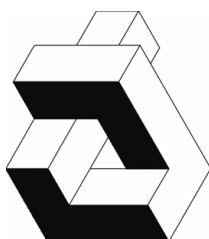
The system is composed of the following modules:

- Navigation: reactive control and SLAM based on a proximity Laser.
- Web: robot operation for remote visits.
- Speech: synthesis and speech recognition. Dialogues management.
- Head: expression of emotions.
- Kernel: coordination of modules and management of communications.
- Intelligence: management of decisions and robot behaviours.

El *Speech Technology Group* of UPM is responsible of speech synthesis and recognition module. UPM-DISAM develops the other components. CACSA supervises the project, attending the meetings, specifying demonstrator characteristics, and allowing testing the system in the Museum.

Contact Persons ...

Fernando Matía, Diego Rodríguez-Losada
Ramón Galán, Agustín Jiménez
matia@etsii.upm.es



UPM-DISAM

Escuela Técnica Superior de Ingenieros Industriales
Departamento de Automática, Ingeniería Electrónica e Informática
Industrial

UPM-DISAM

C/ José Gutiérrez Abascal, 2
E-28006 Madrid, SPAIN

www.disam.upm.es/control

Phones: +34 91 336 30 61 +34 91 745 46 60
Fax: +34 91 336 30 10