Intelligent Robot Assistants
The Interaction, Communication, and Cooperation between Humans and Intelligent Robot Assistants

A research initiative of the BMBF German Department of Education and Research in the area of Man-Machine-Interaction

Consortium

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Scenario
Manufacturing Assistant
Robot Assistant for Housekeeping and Home care
(design study)

Basic research topic
Teaching, Learning, and Adaptation

Basic research topics
Channels of Human-Machine Communication
Scene Analysis and Situation Assessment
Motion Coordination
Safety

MORPHA
The collaboration and co-existence between a human and a robot assistant and the performance and versatility of the human body, shape and mobility are among the key factors that influence the design and functionality of robot systems. The central idea of the MORPHA project is to develop a human-friendly, intuitive, and versatile robot assistant that can communicate and interact with humans in a natural and agile manner. This robot assistant is expected to perform various tasks, including assistance with housekeeping, home care, and manufacturing applications.

The project aims to study the communication, interaction, and coordination of robot systems with human users. This includes the development of mechanisms that enable the robot to understand and interpret human actions, and to respond appropriately. The project will also focus on the development of intelligent interfaces that allow humans and robots to communicate effectively and safely.

The project is divided into five basic research topics:

1. **Safety / Maintenance / Diagnoses**
   - Ensuring the safety and integrity of the robot system and its surroundings.
   - Developing maintenance and diagnostic capabilities to extend the system's lifespan.

2. **Motion Planning and Coordination, Interactive Task Planning**
   - Developing algorithms for motion planning and coordination that allow the robot to interact with its environment.
   - Creating interactive task planning systems that enable the robot to perform tasks in a human-like manner.

3. **Scene Analysis and Situation Assessment**
   - Developing systems for analyzing scenes and assessing situations.
   - Creating human-like mechanisms for understanding and responding to human actions.

4. **Funding Period**
   - The project is funded from 01. July 1999 to 30. June 2002.

5. **Central Idea**
   - Creating a human-friendly, intuitive, and versatile robot assistant that can communicate and interact with humans in a natural and agile manner.

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