Cooperative Human Robot Interaction Systems

Fact Sheet

Project Information

CHRIS

Grant agreement ID: 215805

Closed project

Funded under
FP7-ICT

Overall budget
€ 5 017 721

EU contribution
€ 3 650 000

Coordinated by
UNIVERSITY OF THE WEST OF ENGLAND, BRISTOL
United Kingdom

Start date
1 March 2008

End date
29 February 2012

Project description

Cognitive Systems, Interaction, Robotics
Developing technology for safe cooperative physical interaction with humans in a co-located space
It is beneficial to our socio-economic welfare to generate service robots capable of safe co-operative physical interaction with humans. CHRIS addresses the fundamental issues which enable safe Human Robot Interaction (HRI), specifically the problem of a human and a robot performing co-operative tasks in a co-located space. The related issues include: communication of a shared goal, perception and understanding of intention, cognition necessary for interaction and active/passive compliance.
CHRIS will address the fundamental issues which would enable safe Human Robot Interaction (HRI). Specifically this project addresses the problem of a human and a robot performing co-operative tasks in a co-located space, such as in the kitchen where your service robot stirs the soup as you add the cream. These issues include communication of a shared goal (verbally and through gesture), perception and understanding of intention (from dextrous and gross movements), cognition necessary for interaction, and active and passive compliance. These are the prerequisites for many applications in service robotics and through research will provide the scientific foundations for engineering cognitive systems. The project is based on the essential premise that it will be ultimately beneficial to our socio-economic welfare to generate service robots capable of safe co-operative physical interaction with humans. The key hypothesis is that safe interaction between human and robot can be engineered physically and cognitively for joint physical tasks requiring co-operative manipulation of real world objects. A diverse set of disciplines have been brought together to realise an inter-disciplinary solution. The starting point for understanding cooperative cognition will be from the basic building blocks of initial interactions, those of young children. Engineering principles of safe movement and dexterity will be explored on the 3 available robot platforms, and developed with principles of language, communication and decisional action planning where the robot reasons explicitly with its human partner. Integration of cognition for safe co-operation in the same physical space will provide significant advancement in the area, and a step towards service robots in society.

Programme(s)

Topic(s)

Call for proposal

FP7-ICT-2007-1

Funding Scheme

CP - Collaborative project (generic)

Coordinator Contact

Chris MELHUISH (Prof.)
## Coordinator

**UNIVERSITY OF THE WEST OF ENGLAND, BRISTOL**

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<tr>
<th>Address</th>
<th>Activity type</th>
<th>EU contribution</th>
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<tbody>
<tr>
<td>Frenchay Campus, Coldharbour Lane BS16 1QY Bristol United Kingdom</td>
<td>Higher or Secondary Education Establishments</td>
<td>€ 1 342 901</td>
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Administrative Contact

John Rushforth (Mr)

## Participants (6)

### MAX-PLANCK-GESELLSCHAFT ZUR FORDERUNG DER WISSENSCHAFTEN EV

**Germany**

EU contribution

€ 428 017

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EU contribution

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<tr>
<td>86 Rue Pasteur 69365 Lyon</td>
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