Interactive Urban Robot

Fact Sheet

Project Information

IURO

Grant agreement ID: 248314

Project website

Status
Closed project

Start date 1 February 2010  End date 31 January 2013

Funded under
FP7-ICT

Overall budget € 4 563 009

EU contribution € 3 486 972

Coordinated by
TECHNISCHE UNIVERSITAET MUENCHEN
Germany

Project description

Cognitive Systems and Robotics

Overcoming knowledge gaps through proactive communication with humans

The inability to cope with abstract commands confines today’s robots to very constrained, well-controlled environments. To overcome these limitations, a-priori knowledge is required. However, as objectives and situations may radically change over time there will always be knowledge gaps. Humans are a rich source of information to be utilized so that robots can improve their adaptability and cope with new situations as they arise. The IURO project explores the integration of information retrieval from humans into robot control architectures to complement their perception and action control capabilities. IURO follows a multi-disciplinary approach combining
environment perception, communication, navigation, knowledge representation and assessment, and human factors studies as well as a novel robot platform for human-centred urban environments as a pre-industrial development.

The inability to cope with abstract commands confines today’s robots to very constrained, well-controlled environments. To overcome these limitations, a-priori knowledge - preprogrammed or learned - is required. However, as objectives and situations may radically change over time there will always be knowledge gaps. Even if provided with sophisticated cognitive capabilities, sufficient information will not always be available in the environment to fill these gaps. Humans, however, are a rich source of information to be utilized, e. g. by asking for directions. Access to this source provides robots with a powerful means to improve its adaptability and cope with new situations as they arise. The IURO project explores the integration of information retrieval from humans into robot control architectures to complement their perception and action control capabilities. IURO follows a multi-disciplinary approach combining environment perception, communication, navigation, knowledge representation and assessment, and human factors studies as well as a novel robot platform for human-centred urban environments as a pre-industrial development. IURO focuses on several main aspects, which address core objectives of the call: perception and appropriate representation of dynamic urban environments, identification of knowledge gaps arising from dynamically changing situations and contexts not specified a priori, retrieval of missing information from humans in a natural way by pro-actively approaching them and initiating communication situations. Quantitative and comparative benchmark measures considering flexibility and robustness regarding navigation and interaction capabilities in real-world scenarios are developed. IURO targets novel technologies for new commercial service robots with improved flexibility and dependability. The project consortium combines research in environmental and human action perception, human-robot interaction and communication aspects, navigation and planning, knowledge representation and assessment, and human factors studies as well as robot platform development.

Programme(s)

Topic(s)

Call for proposal

FP7-ICT-2009-4
Funding Scheme

CP - Collaborative project (generic)

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Higher or Secondary Education Establishments

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