ROBotic Open-architecture Technology for
Cognition, Understanding, and Behavior

Project No. 004370

RobotCub

Development of a Cognitive Humanoid Cub

Instrument: Integrated Project
Thematic Priority: IST – Cognitive Systems

D9.3 Progress report on Internationalization activities

Due Date: Month 65
Submission date: Month 65

Start date of project: **01/09/2004**   Duration: **65 months**

Organisation name of lead contractor for this deliverable: DIST, University of Genova

Responsible Person: Giorgio Metta, Giulio Sandini

Revision: **2.0**

Table of Contents

1   Introduction

This deliverable item reports about the internationalization activities of RobotCub.

2   Progress report

The updated version of this deliverable is available on the iCub Wiki following an update of this report at M48. The link to the deliverable is the following URL:

http://eris.liralab.it/wiki/Deliverable_9.3

The following material corresponds to Deliverable 9.3 at M36 and is maintained here to maintain a history of the updates (although it has been now copied to the Wiki webpage).

3   Progress report at M36

The internationalization of RobotCub happened through a set of targeted activities, mostly recently due to the availability of the platform (or part of it) which provided a natural means of advertising the project. In particular:
- Presentations about RobotCub and the I-Cub at international conferences, workshops or other public events
- Generic networking activity with euCognition, CogSys (now a conference), summer schools, personal contacts, etc.
- The RobotCub Open Call
- The RobotCub summer school
- New FP7 EU projects (under negotiation) with explicit links to RobotCub
- Exchange of students and other hardware

3.1   Presentations

A list of some of the most important presentations related to RobotCub follows. We are reporting here only those with reasonable sized audience and/or specific dissemination goals:
o Robot Umanoidi ed esseri umani, Bressanone, Scuola Italiana di Bioingegneria, 26-Sep-06. We organized a special session including Giulio Sandini, David Vernon, Giorgio Metta and Hideki Kozima.
o Robotica e Neuroscienze, Genova, Festival della Scienza, 25-Oct-06. This is a science fair held annually in Genoa.
o Robotics Platform Goals and Labs, Pisa, Meeting EUROP Mirror Group, 14-Feb-07.
o Humanoids, ICub and IIT, Tokyo, Primavera Italiana "Are Robots among us?" 23-Mar-07. A special event within an Italy-Japan program.
o Intelligent and cognitive systems, Eze – France, International Cooperation Activities in Future and Emerging Information and Communication Technologies, 10-May-07.
o Robotics Brain and Cognitive Sciences: toward new technologies, Torino, Passion for Robots, 11-Jun-07

- o Humans and Humanoids, Frankfurt, Honda Research Institute, 11-Sep-07.
- o Cosy Summer School. Robots, neuroscience and artificial cognition, Berlin, Sept 2007.
- o Workshop on Humanoid Technologies. Organized by Metta, Sandini, Cheng, Cannata at the IEEE-RAS Humanoid 2006 conference, Genoa, Dec 2006.

3.2 Generic networking activity

Nothing in particular to report. We have been in touch with the community quite often reporting the RobotCub progress into the completion of the platform. This has been instrumental also with respect to the preparation of the Open Call.

3.3 The RobotCub Open Call

It cannot be reported yet. The Open Call will close on Dec 1st, 2007.

3.4 The RobotCub summer school

Deliverable item D9.2 links with the relevant documentation of the summer school. The school website is online at: http://www.robotcub.org/summerschool.

3.5 New FP7 EU projects

Three new project are under negotiation with specific links to RobotCub:
- o ITALK (IP)
- o CHRIS (Strep)
- o Poeticon (Strep)

3.6 Exchange of students and other hardware

- o We have students visiting from various labs including:
  - o Waseda University
  - o Australian National University
  - o TU-Delft
  - o Karlsruhe
- o There are plans to establish a funded network for exchanging researchers (with various research centres worldwide.

3.7 Results

The main results are:
- A robot is planned to be built for Riken (Japan) for Jun Tani.
- The legs of the I-Cub are going to be built for the German Humanoid Project in Karlsruhe (Prof. Rudiger Dillmann). These will be a modified version and they are going to work on bipedal locomotion (complementary to RobotCub).
- 4 robots are planned for the FP7 project ITALK, under negotiation.
- Interest has been shown by partners of the FP7 project CHRIS, under negotiation (head and upper torso).

- Interest has been shown by partners of the FP7 project Poeticon, under negotiation.
- One I-Cub head has been in Japan at the University of Tokyo with a student from the University of Genoa for approximately 5 months. The student has been working on topics of mutual interest with Prof. Yasuo Kuniyoshi.
- A quotation has been asked to the Coordinator for a copy of the I-Cub by Georgia Tech, US (Andrea Thomaz).
- Collaboration in vision software has been started with Ales Leonardis and his team in Lubjana, Slovenia.
- The RobotCub software architecture YARP is being used (sometimes unnoticed) by various groups both in the US and EU. The list of developers (outside RobotCub partners) follows:
    o Radu Bogdan Rusu (inertial sensor)
    o Alexis Maldonado (inertial sensor)
    o Eric Mislivec (opencv wrapper)
    o Christopher Prince (Solaris fixes, mac regression machine)
    o Charles C. Kemp (firewire camera on linux)
    o Nelson Gon\c calves (testing and patch for SWIG, Java, Matlab on MINGW)
    o Marco Barbosa (64-bit linux bug fix)
    o Tomassino Ferrauto (patches to Bottle implementation; shmem bug tracking)
    o Giacomo Spigler (nvidia gpu driver)
    o Freyr Magnusson (yarp::os::DummyConnector class)
- Contact has been made with various groups interested in developing infrastructure for humanoid robots (e.g. ATR, Japan; Karlsruhe, Germany; CMU, US). A special issue for the Robotics and Autonomous Systems Journal is in press which describes the current situation with robotic architectures (sort of state-of-the-art). This followed a workshop at the IEEE-RAS Humanoids 2006 conference in Genoa.
- Various contacts with the general press. In particular, a piece on the I-Cub should be appearing on the December issue of the magazine Wired.
- The Open Call has been released. We do not know how many applications we will receive yet.
- The summer school was held at IIT in Genoa on 16-26th of July 2007. Participation was mostly (on purpose) limited to RobotCub partners. The school was important for fixing and improving the RobotCub standards, to communicate internally to RobotCub these standards, to present them to some of the 2006 school participants.
- DARPA has contacted the Coordinator enquiring about the platform for their cognitive systems program.
- One student from TU-Delft has done his Masters Thesis at the University of Genoa specifically working on RobotCub.
- Giorgio Metta and Francesco Nori have visited the labs at ATR, Japan to discuss and plan specific issues related to humanoid robot control and software sharing with Gordon Cheng.
- The Research and Training Site has been started at IIT. This is instrumental to the training and support of groups willing to enter into the RobotCub community of users and to support the winners of the Open Call.

4 Conclusions

Internationalization is clearly work in progress. The measure of success of these activities is clearly in the number of robots that are going to be built at the end of the project and in the new projects mentioned above. For the open source policy to be successful clearly we have to be able to rely on a large user basis.