INTEGRATING WEB RESOURCES INTO THE EU AGENTCITIES MULTI-AGENT INITIATIVE

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Home page of the project: http://www.ilab.sztaki.hu/rfo/web2agent

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1. Brief Description

Complex distributed computer systems are increasingly modelled as networks of agents and an increasing number of agent technology related methodologies is applied nowadays in the design of such systems.

Agents are problem-solving units with well-defined boundaries and interfaces operating in given environments. Agents receive inputs about the state of their environment through their sensors, may change their environment via their actors, have specific goals, control their inner state and actions autonomously, and apply flexible problem-solving algorithms to hit their target, i.e. react upon the change of their environment and proactively prepare to the achievement of later goals.

The Foundation for Intelligent Physical Agents (FIPA) was formed in 1996 to produce software standards for heterogeneous and interacting agents and agent-based systems. The core mission of the FIPA standards consortium is to facilitate the interworking of agents and agent systems across multiple vendors’ platforms in modern commercial and industrial settings.

EU accepted last year the proposal of the FIPA AgentCities Working Group, which aims at encouraging and supporting the creation of a network of publicly available FIPA agent
services. This agent network serves as an experimental testbed to test the interoperability of different platforms, develop applications and demonstrate the FIPA technology. Companies with strong application interest like British Telecom, Telecom Italia Laboratories, Fujitsu Laboratories of America, Motorola Laboratories Paris and EPFL can be found among the initiators of the AgentCities project.

A simple and demonstrative example of e-commerce and information society application within the AgentCities project is the following: the future businessman arrives in a city for a negotiation, the agent running on his smart mobile phone automatically connects to the agents of the local hotels and selects the ones that fit the user profile and budget of the businessman the best, and finally offers the businessman to make his choice. Another example is of the tourist arriving in a foreign town, whose agent running on his car automatically contacts the local traffic information centre, and provides information to the driver how to avoid traffic jams in the town.

Promising research results didn’t get to application phase yet. One of reasons for this, to the belief of the project members, is the missing link between agent systems running in research laboratories and the publicly available information on the Internet. The aim of the project is therefore to develop an interface technology that enables the creation of a communication layer on top of a given Internet information source that serves as a FIPA-compliant agent gateway so the Internet information source becomes accessible to the agent world, too. This interface technology potentially opens up the whole Internet as an information source for the AgentCities initiative.

During the project we have set up the Budapest AgentCities node and connected it to the worldwide AgentCities network [1]. We elaborated a prototype library ontology, which defines the concepts, agent actions and predicates used in accessing library systems. The ontology is available form the [1] web site. We designed the methodology for the realisation of the interface connecting agents and Internet services and we created tools to support the methodology. The supporting tools are available on-line from [2] and a simple web service demonstration application is also available at [3].

The main demonstration of the interface technology is a library system under development. We have installed a prototype library agent service on the Budapest AgentCities node that builds on existing library search systems available on the Internet and we present it in a demo application [4].

Members of the project are in communication with European agent research centres via the AgentLink EU Network of Excellence and also take part in the AgentCities.NET EU funded project, through which they have access to the technology of the AgentCities initiative. The project is also represented in the World Wide Web Consortium’s (W3C) agents and web services working group, which is in formation.

[1].http://www.ilab.sztaki.hu/rfo/agentcities
[2].http://sas.ilab.sztaki.hu/wsdlttool
[3].http://sas.ilab.sztaki.hu/wsid