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Interim Report, May 31st 2009

FUNSET - Science

Future Network-based Semantic Technologies

LEADING INSTITUTION

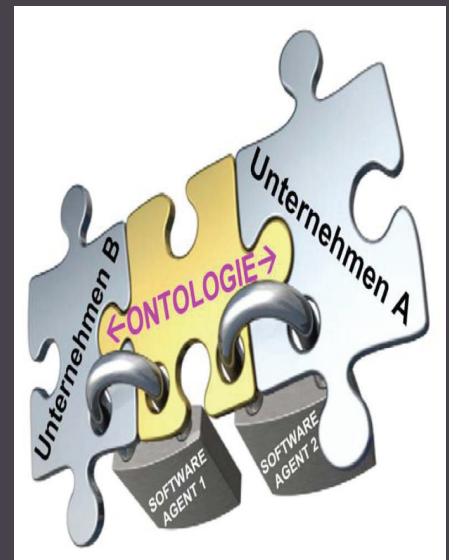
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SCIENTIFIC CO-OPERATION PARTNERS

COPA-DATA GmbH
Renewable Energy & Energy Efficiency Partnership
negPOINT

SCHOOLS INVOLVED

Technologisches Gewerbemuseum Wien (TGM):
- HTBLVA für Infromationstechnologie
- Kolleg für Elektrotechnik



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Austrian Federal Ministry of
Science and Research

Present Activities

Following the project Kick-Off meeting in September 2008 and the presentation of the project at the technical high school HTL Technologisches Gewerbemuseum (TGM) 28 registered students of the 4th grade of the Department for Information Technology were divided into seven groups. These groups comprise also several students from the Internet and Media-Technique as well as System-Technique Department. One additional group from the College for Renewable Energy supports the project since December 2008. Altogether the research team consists of 39 persons including four teachers of the TGM.

Besides the scheduled teaching areas, as for instance project management, the project introduction phase introduces new fields, such as knowledge-based systems and rule-based programming languages, within additional voluntary courses. These new fields are presented by TU researchers in an amount of two hours per week and will be evaluated with regular school marks. The participating students are trained also in fields such as ontology design with Protégé, rule-based programming in JESS (Java Expert System Shell) as well as agent development in JADE (Java Agent Developer Environment).

At the same time with the teaching activities, we also searched and found prominent project partners, e.g. COPA-DATA in the automation field, negPoint in the negotiation domain, and REEEP from the social sector. The project partners support us with their knowledge, which is required for the successful definition and implementation of test cases as well as for a gainful teaching process. For that purpose we organized numerous visits to our project partners, as for instance to REEEP in the UNO City. The two-day visit to COPA-DATA in Salzburg brought us not only technical education and training but also improved the team spirit since the whole project team took part on this trip.

Since January 2009 we have been working on the implementation of the concept by designing the test cases' ontologies and implementing related rules. The diversity of particular test cases was aligned and discussed on whole-day meetings, which are held every month on Saturday at the TU. The following projects were defined and are currently implemented:

- SNA – Semantic Negotiation Agents – deals with the development of an ontology that supports agents during auctions. (Partner: negPoint)
- LiStoSys – Liquid Storage System – deals with the development of an ontology and rules for a tank system. (Partner: COPA-DATA)
- WareLOXX – deals with the development of ontology and rules for the automatic consignment of orders on pallets within the storage. (Partner: COPA-DATA)
- PET Bottles – deals with the development of ontology and rules for a bottle filling company including failure tolerance. (Partner: COPA-DATA)
- ECORE³ – Expert Concept for ontology about Renewable Energy and Energy Efficiency (SKOS-OWL conversion, mapping/merging of ontology). (Partner: REEEP)
- MASPE – Multi-Agent System for Process automation – ontology and rules for the representation of related equipment and processes. (Partner: ODO-Struger-Labor at the TU Vienna)



At the end of the school year the students have summarized their individual projects in a scientific form together with the researches from the TU Vienna under the title “Ontology-oriented Framework for Virtual Enterprises – Accomplished in project: Future Network-based Semantic Technologies (FUNSET-Science)” which was submitted to the IEEE International Conference on Knowledge Engineering and Ontology Development. It is planned to send the best student of each group to take part on this conference to Madeira, Portugal.

During the summer 13 students which are involved in the project, will complete a four week research internship at the TU Vienna. The results of these work-intensive weeks should be the basis for further publications.

As can be seen from these results the planned aims are achieved. However, there is no need to take a break since all participants are top motivated and ready for new challenges.

Citation from Researchers, Teachers and Students

„I’m impressed by the students’ motivation to research, which the students showed by not only walking unknown paths but even searching for them. The unusual freedom, offered by the research domain and in the beginning almost a handicap, finally became a driving instance for the enormous motivation of all participants and for the very good results.“ Prof. DI Mag. Gottfried Koppensteiner


„Scientific research represents an important economic sector especially nowadays. Hence, I am very glad about the students’ commitment exhibited during the work on their projects, which already lead to valuable insights. Maybe some of the students might be met again some day as full-grown researchers at a university or a research institute.“ DI Wilfried Lepuschitz

„Considering the complexity of the research field and the fact that for all of us the investigated domain is a ‘new land’, I’m more than satisfied with the students’ ideas and achieved results.“ Dr.techn. Munir Merdan

“We are fascinated by the fact that we investigate new technologies and explore some ways that none has gone before us. A research project of this profile was definitely a great personal enrichment and brought us a great value for our further career.” Andreas Harapat, David Kurz, Constantin Reinprecht and Florian Würrer

„Our project delivered us an interesting insight into the science with knowledge and rule-based systems. We could learn a lot and reach our aims, so we have earned a big proud of ourselves“ Michael Peitl





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