

Report on an Exchange Visit Funded by PerAda

Between Edinburgh Napier University and NXP Eindhoven

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Background

Collaboration between NXP and the Napier University has been on going for a number of years. Anna Kosek, a PhD student from Napier University is currently hosted by NXP for a period of 1.5 years to carry out research in the field of Smart Spaces.

Edinburgh Napier University has developed CSP-based software techniques that can be used to model parallel processing in the smart spaces. NXP is interested in using this technology to develop a capability to support the development of hardware/software solutions for smart indoor spaces; in particular, as applied to modern lighting systems. This is also the subject of research that NXP is undertaking in the Sofia project of Artemisia, where Anna Kosek is also involved.

Between 23rd and 25th June, Aly A. Syed of NXP Semiconductors Eindhoven visited Edinburgh Napier University. The purpose of this visit is to set forth the scientific discussions started during the visit of Prof. Jon Kerridge to NXP in March 2009 [Kerridge 2009]. During this visit, we discussed how we could use the CSP based techniques for modeling the HW-SW environment of smart spaces. We discussed how to model a HW-SW system based on ontology using CSP and identified an application that represents the intricacies of a smart lighting environment that can subsequently be modeled as a test case.

Discussions

During this visit, a number of meetings were held with Jon Kerridge and Alister Armitage to discuss the progress of Anna's PhD project and to try to understand if the idea for the project as initially defined during Jon Kerridge's visit to NXP in March 2009 are still valid in the light of progress made in Sofia project and the studies performed by Anna.

During these meetings, we concluded that the initial ideas are still valid and that Anna's PhD project is running as planned. We also discussed two papers that will be submitted to the CPA conference in Eindhoven in 2009.

The technical subjects that were discussed are:

Ontology development

The Sofia project has decided to develop an interoperability platform based on ontology. NXP is participating in the Sofia project to develop a smart lighting control system that will interoperate with the infrastructure in a smart indoor space. For this purpose, Anna has been involved in developing an ontology for smart lighting control system. The effect of this development on Anna's project was discussed. We concluded that this development is in line with how we envisaged Anna's project.

Architecture Development

During the last visit of Jon Kerridge to Eindhoven, we had agreed on a number of scenarios that will be implemented as a proof of the concepts resulting from Anna's research. These scenarios will enable smart lighting controls. During this visit, Anna presented architecture that is being developed, to Jon Kerridge and Alister Armitage. In discussions with both Jon Kerridge and Alister Armitage, we agreed that that the architecture as proposed can support a number of scenarios that can be used to experiment with the proposed concept. It was agreed to carry on with the proposed architecture and to start the development of a CSP based model of the application scenario. This scenario will use the ontology defined in the Sofia project.

Also during this visit, we discussed some details about the smartness enabling component in this proposed architecture. We were able to justify the use of CSP for this modelling exercise.

Project planning review

27-06-2009

We reviewed the time planning of the project. We concluded that the project is on track up to now even though there seems to be a lag in that the architecture has not been fully defined. We concluded that implementation can be started in Aug. 2009 as planned.

Since Anna was attending the PerAda summer school in Edinburgh, we tried to make use of Anna's presence in Edinburgh and also Aly A. Syed got the opportunity to attend a few lectures and working sessions of the school.

References

Kerridge 2009

Report on an Exchange Visit Funded by PerAda, Jon Kerridge March 2009.