

**Annual report 2009 of the “Forschungsschwerpunkt”
“Ambient Systems – Technologies and Appliations (AmSys)”
(Abstract)**

1. Summary

The “Landesforschungsschwerpunkt” AmSys is focusing on technologies and applications of ambient systems, a new generation of miniaturized distributed networked embedded systems based on intelligent sensors and actuators, and advanced signal processing capabilities. Ambient systems typically operate largely autonomously without human interaction. They are the foundation of a very challenging IT-vision, which efficiently supports the capabilities and skills of the human being in its everyday life.

The scientific work on ambient systems requires a strong interaction between different technical disciplines as well as technology development and applications in innovative use cases. AmSys refocuses the already existing expertise at the TU Kaiserslautern to achieve scientific leadership in this field. To reach this ambitious goal, already existing disciplinary and interdisciplinary research activities are concentrated and systematically advanced.

2. Current Highlights

In several workshops, presentations, and group meetings, the „Landesforschungsschwerpunkt“ AmSys has significantly intensified its internal collaboration. From a scientific perspective, the most relevant results are the identification of common fundamental problems in different fields of applications and of methodologies that allowed developing generic solutions. From an organizational point of view, internal and external collaboration were strengthened and resulted in a number of joint research plans and project proposals. Some examples are:

- On July 15th, 2008, research groups in Bremen and Kaiserslautern – here, including four AmSys members – submitted a preliminary project proposal for a “DFG Transregio” called “Underwater Robots – Self-evaluating Technical Systems (SETS)”. The proposal was reviewed and, in April 2009, the DFG senate recommended it for acceptance. Yet, in July 2009, the consortium reached the decision to withdraw the project proposal.
- A consortium comprising major competence centers for computer science in the South-West of Germany including three AmSys members submitted a proposal for a “Spitzencluster” to the German Ministry for Education and Research (BMBF). The final decision on the ten short-listed proposals (including our proposal) is expected for January 2010.
- Two applications for scholarships for junior scientists working in AmSys partner groups were accepted by the Carl Zeiss Stiftung in 2009.
- The research activities carried out in AmSys largely contributed to the success of the University of Kaiserslautern in the ERASMUS Mundus II Call of the European commission. The proposal of the university was successfully approved by the commission. As a result the European master study course “European Master in Embedded Computing Systems (EMECS)” which is strongly related to ambient systems will be set up at the University of Kaiserslautern.
- AmSys PIs submitted the joint proposal “Netzwerk Eliteschule des Sports” to the German Federal Institute for Sports.
- The research activities in the three application fields of Ambient Systems: Assisted Living, Assisted Training and Assisted Working with their corresponding demonstrators were consistently continued.