Abstract:

With the development of the generations of micro controllers, the advances in miniaturization, and the increasing use of networked embedded systems, new research challenges emerged in several domains of computer science. This especially includes the manageability of massively distributed systems complicated by inherent restrictions of the available resources. Well-known concepts for management and control can be used with noticeable restriction or even not at all due to short-living batteries and the unreliable communication between the employed devices. In the envisioned domain of networked embedded systems, especially wireless sensor and actor networks can be named as the key application to prove the applicability of developed methods and techniques.

In this presentation, the term self-organization will be clarified. We will study the primary self-organization mechanisms including reduced state operations, positive and negative feedback loops, and probabilistic techniques. Targeted issues include scalability, energy efficiency, security, and quality of service support.

In the talk, different problem areas will be discussed using wireless sensor and actor networks as an example. This includes the coordination and control of autonomous systems, communication and routing issues in dynamic topologies, and the software management for networked embedded systems. Based on current research activities, the following questions and proposed solutions will be discussed:

- Self-organization of distributed autonomous systems – a paradigm shift in management and control
- Network-centric operation – a rule-based approach for flexible data processing within the network with self-learning capabilities


Zeit: 14.00 Uhr

Raum: RIGZ, Joachim-Jungius-Str. 9, Konferenzraum II