Programming Wireless Sensor Networks: From Theory to Practice

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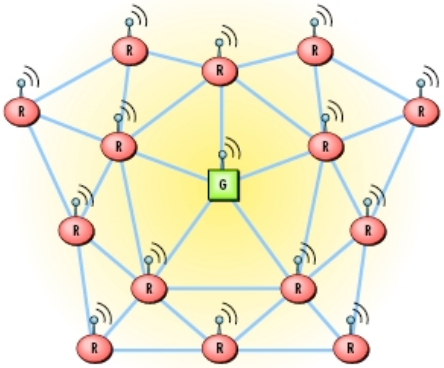
Wireless Sensor Networks (WSNs) are distributed systems composed of tiny computing devices able to sense various environmental data, e.g., temperature, light, humidity, and vibration. By blending the digital and physical world, WSNs enable a wide range of sophisticated applications, from structural monitoring to supply-chain and smart inventory management.

A recent report from the market research firm ONWorld predicts that the global market for WSNs will grow tenfold by 2011. However, the same report also identifies *ease of programming* as the major barrier to the adoption of WSN technology. Researchers are addressing this issue with several programming approaches, which differ along many dimensions, and for which a systematic characterization is still missing.



In this tutorial, we describe a taxonomy of WSN programming solutions, providing a foundation to classify, compare, and evaluate the various approaches. Next, attendees experience hands-on the programming of WSN applications using *real nodes*. The tutorial targets researchers in software engineering interested in the challenges posed by WSNs, or working in pervasive/ubiquitous computing. Practitioners and researchers from different areas can nonetheless benefit from the systematic overview and hands-on introduction to this interdisciplinary topic.

The International Conference on Software Engineering (ICSE – icse08.upb.de) is the premier software engineering conference, providing a forum for researchers and practitioners to present and discuss the most recent innovations, trends, and experiences. In addition to a strong technical program, you can expect cultural highlights such as a concert with the world-renowned Gewandhaus orchestra, and a visit to Bach's long-time workplace and Goethe's favorite pub.

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