ETH
Eidgenössische Technische Hochschule Zürich
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Distributed Computing Group

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Semester Thesis “Dynamic Memory in TinyOS”

Recent advances in wireless networking and microelectronics have led to the vision of sensor networks consisting of hundreds or even thousands of cheap wireless nodes each equipped with some memory, a processor, a power unit, and a short-range radio. TinyOS is the de facto standard operating system for a wide range of available hardware platforms. Due to the strong hardware constraints TinyOS does only support static memory allocation. That is, the size of variables and data structures has to be determined at compile time.

Although this design decision is reasonable it would be good to allocate memory at runtime for some specific applications. In this thesis we will consider different approaches to dynamic memory allocation and evaluate how they suit our requirements.We will then implement one particular solution on top of TinyOS and test its performance on real sensor nodes.

Required

- Advanced programming skills
- Basic C knowledge
- Interest in working with an embedded platform

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