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Semester Thesis

Multi Hop Remote Control for Sensor Nodes

We are building applications for wireless sensor networks. In this process, we often need to understand in detail how our programs execute on the sensor nodes, and whether we encounter some unexpected states. As the devices we work with are small (see Figure 1 for a picture of a TinyNode) and only feature 4 LEDs for visual communication with the outside world, we need some other tools to acquire the desired information.

We have already built a generic Java-based remote control to issue commands to a given node, and we have also a flash-based logging tool. However, both of these tools require the node to be attached to a PC over the serial port. As a result, the interaction with the nodes in a large sensor testbed with many nodes introduces much overhead, as we need to walk to each node and connect it to a PC/laptop to issue commands or to retrieve the log messages.

In this semester thesis, you are asked to design and implement an improved version of these tools such that we can issue commands and read the log files from nodes which are not directly connected to the PC themselves. The communication with these nodes happens via the radio module which is attached to each node.



Figure 1: A TinyNode

Required Skills

You should already have some basic skills in software development and you should know the C programming language.

Are you interested? Please contact us by email or phone.

Advisors

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