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Work in Progress Poster Abstract

A User Friendly Toolkit for Building Robust Environmental Sensor Networks

by

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March 12, 2007

1. Abstract

Wireless sensor network research is growing rapidly, but building and deploying real-world wireless sensor network applications still requires the considerable technological expertise. We present a user friendly toolkit that simplifies the process of building robust and extensible wireless sensor networks, with our first target application being long-term environmental sensor networks. This project includes a programing language called the Sensor Web Language (SWL), an Eclipse-based graphical user interface for writing SWL programs, and a compiler for generating a complete stack of deployable sensor network code.

In environmental monitoring applications, Wireless Sensor Networks (WSNs) enable data collection at orders of magnitude over what was previously possible. In the past few years, a number of WSNs have been deployed to answer real research questions [3, 5, 6]. In each case, a team of computer science experts collaborated with scientists to design and build the WSN to meet the scientist's needs. Over the years work has been done to simplify the process of deploying WSNs, [1, 2, 4, 5] but actual deployment of WSNs still requires considerable technical proficiency.

In this paper we present the Sensor Web Language Toolkit (SWL-Toolkit), an effort to further reduce the required expertise of deploying a robust WSN for environmental monitoring. The SWL-Toolkit has the potential to be used for other applications as well, but environmental monitoring is our first target application.

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