The Case for Deployment-Support Networks – A Poor WSN Development Reality

It is hard to deploy beyond 10-20 nodes. – Coordinated methods, concepts and tools are missing today.

Next-Generation Deployment-Support

JAWS Application Partitioning

Sensor Network Maintenance Toolkit – Services Based on the Deployment Support Network

Remote Logging and Event Detection
• Time-synchronized logging at DSN nodes
• Configurable event logging and monitoring
• Multiple verbosity levels
• Asynchronous notifications to host GUI

BTnut OS Tracing Facility
• Fine-grained tracing of low-level events and IRQs
• Easy, post-facto analysis

Long-term Logging and Data Analysis
• Logging to files and mySQL database
• Simple but powerful queries
• Online graphing using cacti and rrdtool

Remote Programming
• Simple insertion of firmware images using web-based frontend
• Automatic dissemination of version controlled firmware
• Multiple target architectures, independance from target OS

Generic DSN Access
• Flexible acces using Bluetooth
• Command line and GUI Control

Power and Status Monitoring
• Support for in-situ battery status and current measurement

Coordinated Fault Injection
• Control over all distributed target devices
• Simple creation of test scenarios

These tools are crucial for effective deployment and maintenance of WSNs.