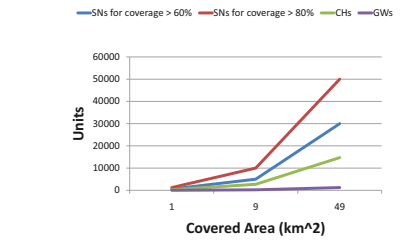
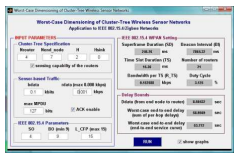
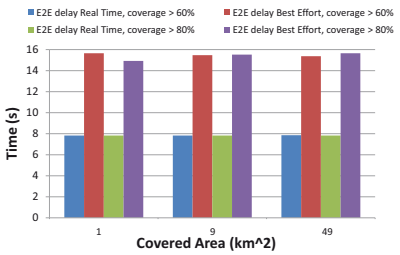
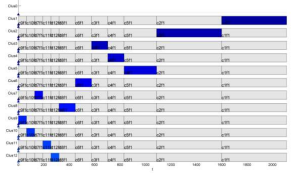
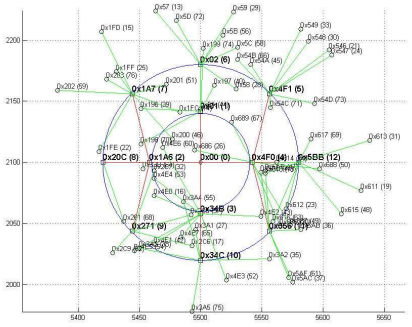
ARTEMIS Project Call 2008

WSN planning, dimensioning, analysis and programming

ARTEMIS
Project title: EMMON
EMbedded MONitoring

Inputs:

- Covered area (1 km^2, 9 km^2, 49 km^2)
- Sensing coverage (> 60%, > 80%)

	Outputs	Results
Topology Simulation and Planning **(JAVA – JiST-Swans simulator)** **Features:** - Highly scalable: +10.000 nodes - SIDnet platform: integrates IEEE802.15.4 MAC model - Bluit-in signal propagation and interference models	**Number of Patches** **Number SNs** **Topology scheme**	
Worst-Case analysis **(Matlab tool)** **Features:** - Deterministic W.C. R.T. E2E delay IEEE802.15.4/Zigbee networks	**Worst-Case E2E delay**	 **W.C. R.T. E2E delay of 59 seconds**
IEEE802.15.4/Zigbee Simulation **(OPNET model)** **Features:** - OPEN-ZB/IEEE802.15.4 protocol simulation model - Allows simulation and collection of several statistical analysis of network performance	**End to end delay CSMA/CA** **End to end delay GTS**	
TDBS dimensioning **(Matlab tool)** **Features:** - Allows dimensioning the start times of CHs at network building time 	**Zigbee addresses** **Topology: Parent<->Child** **Offset CHs start times**	

Programming Application → **WSN**

Experimental results:
- Maximum E2E delay CSMA/CA traffic: 20 seconds
- Average E2E delay CSMA/CA traffic: 12 seconds