

SensorScope II and III: Requirements and Status

Henri Dubois-Ferriere, EPFL

MICS WG2

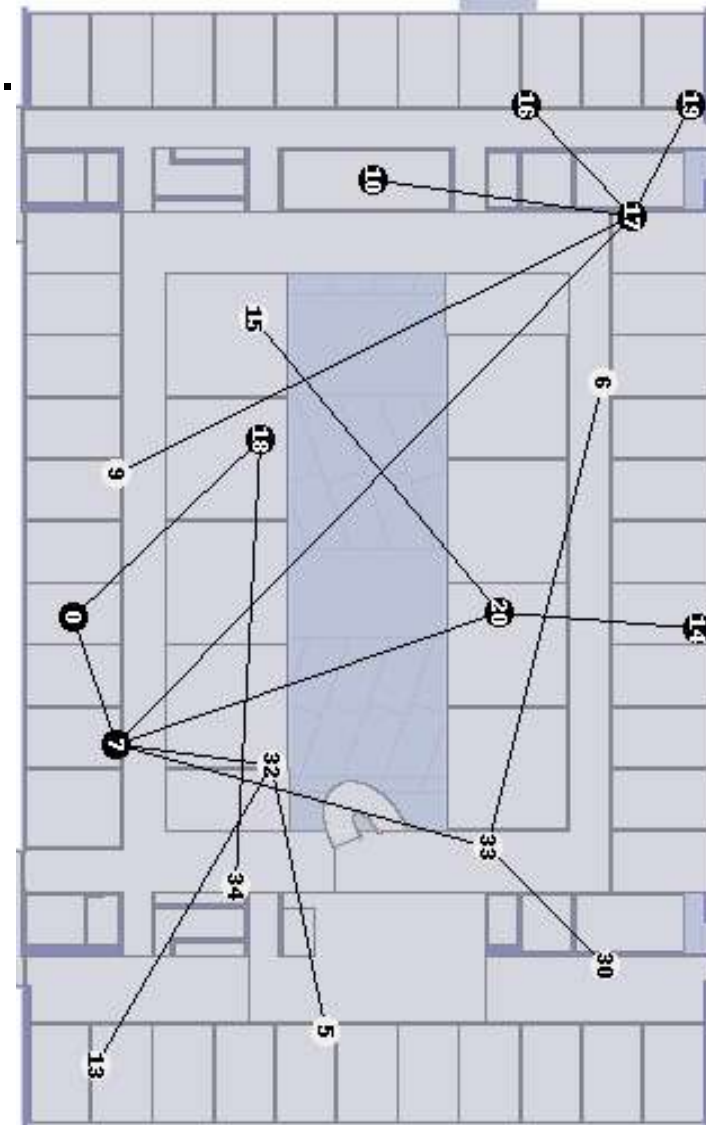
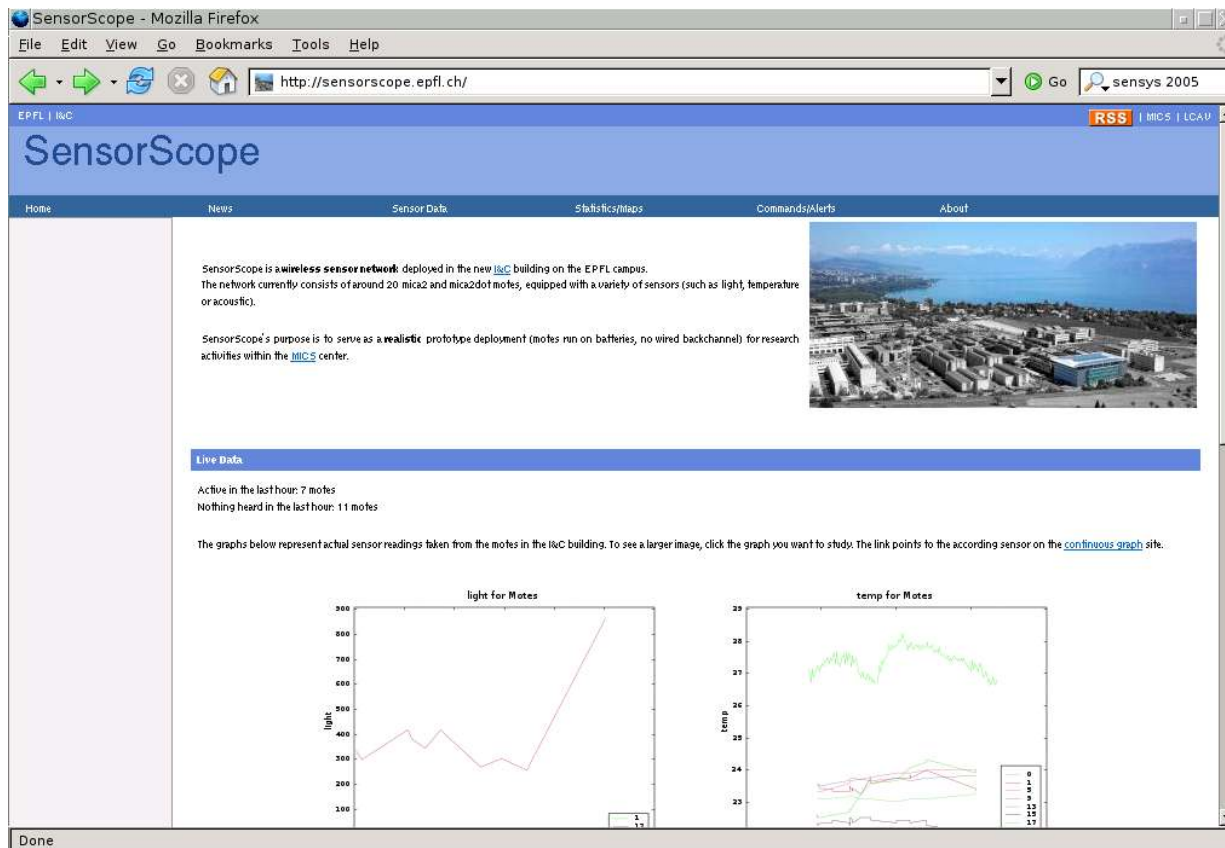
Kickoff Meeting – ETH Zurich



Team: Profs. M. Parlange, J. Selker, and M. Vetterli;
Laurent Fabre, Hendrik Huwald, and soon... G. Barrenetxea!

History: SensorScope I

- Small-scale deployment, 20 nodes, BC building @ EPFL.
- Operated for 12 months, all data online.
- Toy app, but learned **a lot** by doing it.



SensorScope II and III

- Collaboration with EFLUM (Laboratory of Environmental Fluid Mechanics and Hydrology).
- Gather environmental data for modelling of energy fluxes at earth-atmosphere boundary.
- **SensorScope II:**
 - 110 nodes, 700+ sensors, on EPFL Campus
 - Use Shockfish TinyNode (range, flexibility, proximity)
 - Deployment starting May 2006, duration several months
- **SensorScope III**
 - n nodes, n sensors, on Glacier de la Plaine Morte (VS)
 - Deployment starting early 2007 (?)

SensorScope II - Requirements

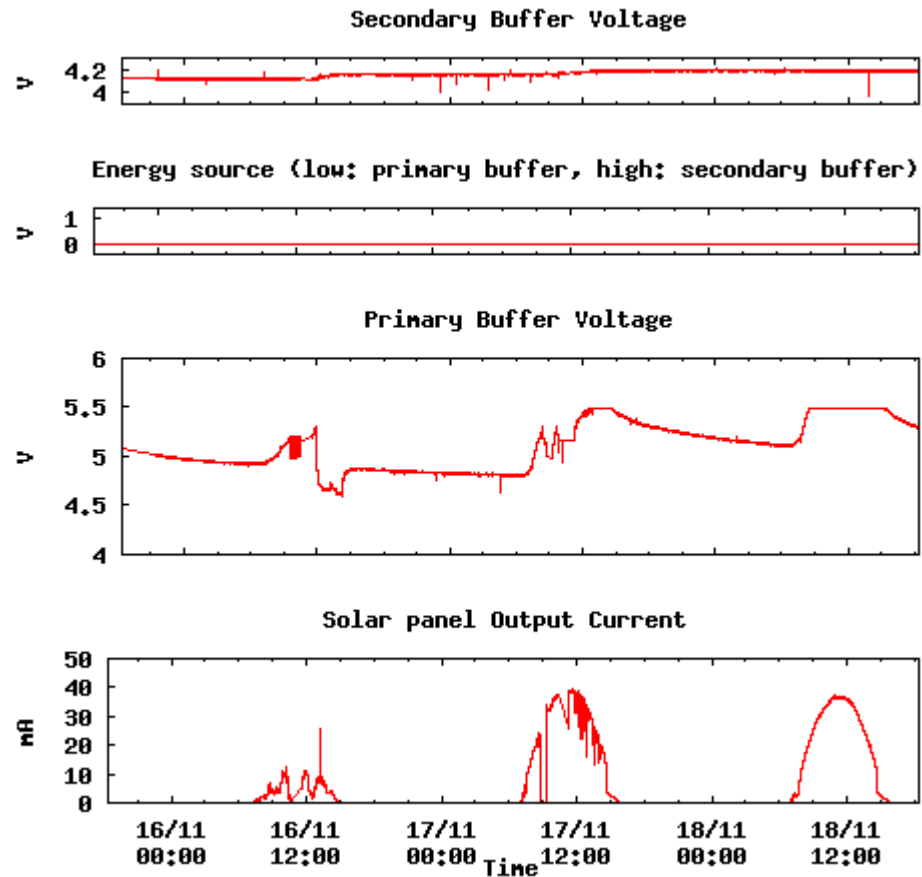
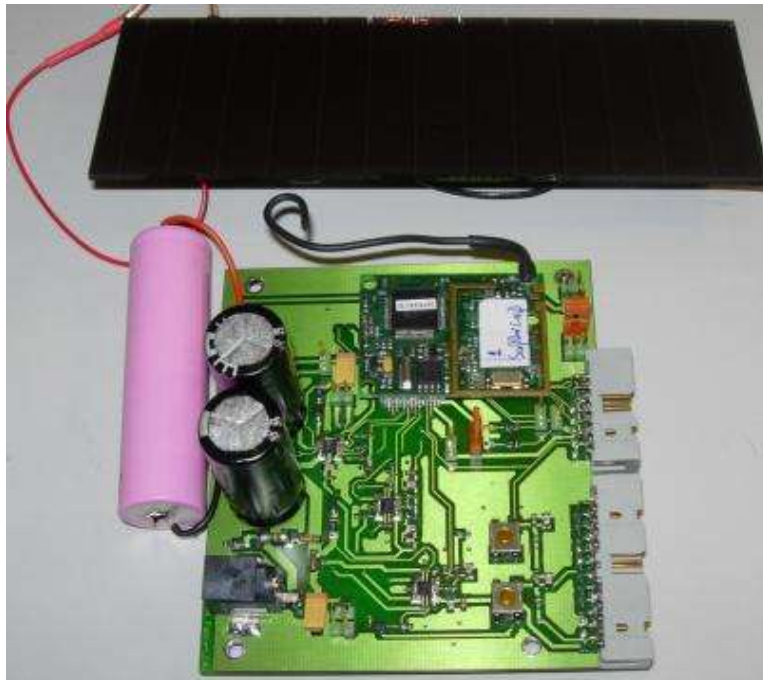
- **Housing for mote and sensorboard**
- **Tower station** (forget smart dust!!!)
- **Interface board for sensors:**
 - Si Photodiode
 - IR Skin Temperature (Zytemp TN0am)
 - Anemometer (Davis)
 - Tipping bucket rain gauge
 - Relative Hum/Temp Sensor
 - Soil Moisture (Echo)

SensorScope II - Requirements

- **Mote-side software:**
 - Single-hop, multi-sink topology:
 - Time synchronization
 - Sink selection
 - Reliability
 - Sensor drivers
 - Existing TinyOS components and lots of glue!
- **Server-side software:**
 - DB hooks
 - Simple web interface

SensorScope II – Requirements

- **Solar Energy Board:**
 - Solar Panel
 - Primary and Secondary Energy Buffers
 - Software-driven
 - Inspired by UCB's Prometheus



More info at:

<http://lcavwww.epfl.ch/~henridf/solar.html>

Status

	Item	Status	Date
Hardware	Solarboard	Done	Nov 2005
	Sensorboard	In Progress	Feb 2006
	Stands	In Progress	March 2006
	Packaging	Not Started	April 2006
Software	TinyOS/TinyNode	Done	Nov 2005
	Protocol Stack	In Progress	April 2006
	Sensor Drivers	Not Started	March 2006
	Web + DB	Not Started	April 2006

Green: Have done / will do; may be useful to other projects

Blue: Will do if have to, but would be glad to leverage other's work

