Remote Laboratory @ EPFL

10 years of exploitation with 200 students/year

Dr. Denis Gillet & Dr. Christophe Salzmann

Research Context

Swiss & European RTD research projects

eMersion & Mentors 2001: Hands-on Experimentation Modules and online Tutoring Services for Flexible Engineering Education
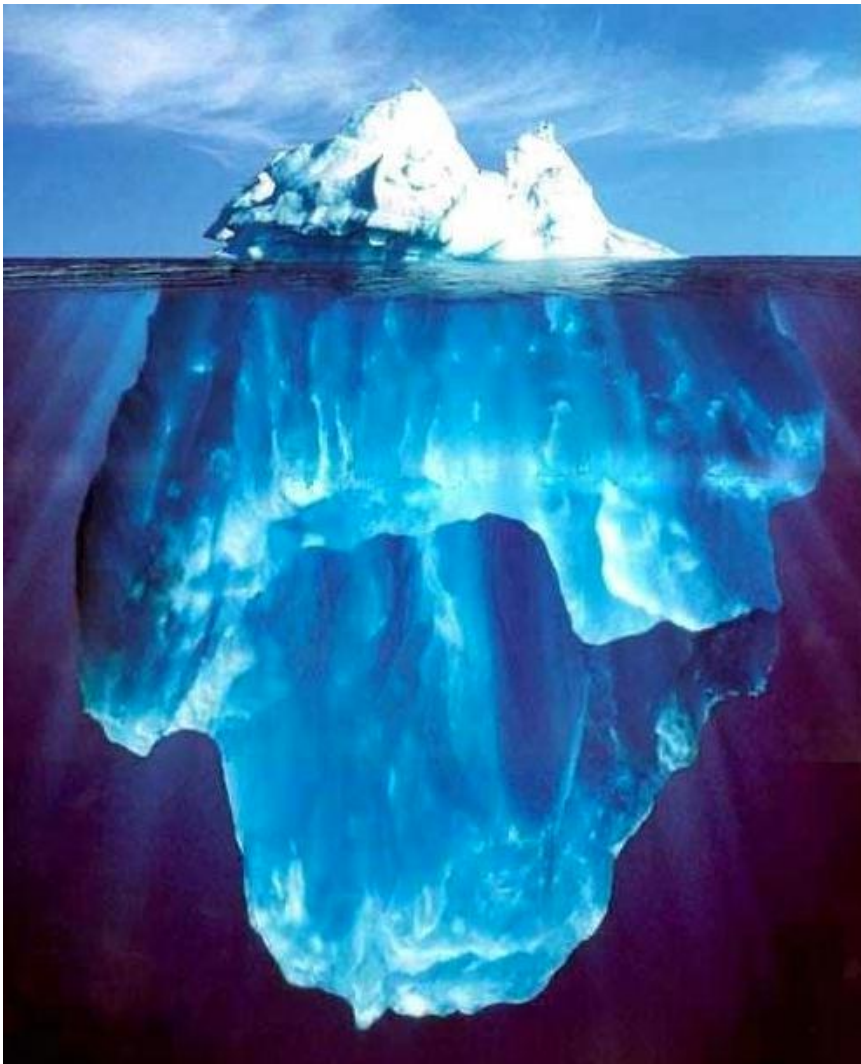
ProLEARN 2004: EU Research Network of Excellence in Professional Learning and Knowledge Management

PALETTE 2006: EU Pedagogically sustained Adaptive LEarning Through the exploitation of Tacit and Explicit knowledge
(Online Learning Communities and Communities of Practice)

STELLAR 2009: EU Research Network of Excellence in Technology Enhanced Learning (5M€) – *Executive*

ROLE 2009: EU Integrated Project on Responsive Open Learning Environments (8M€) - *Leader Web 2.0 Service Bundles*
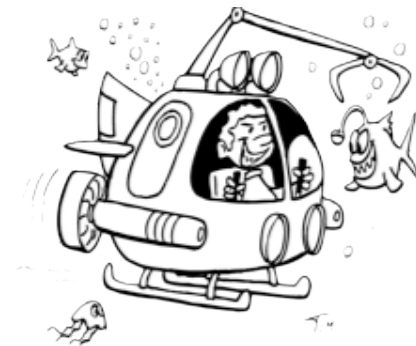
Challenges and Trends

Formal Teaching
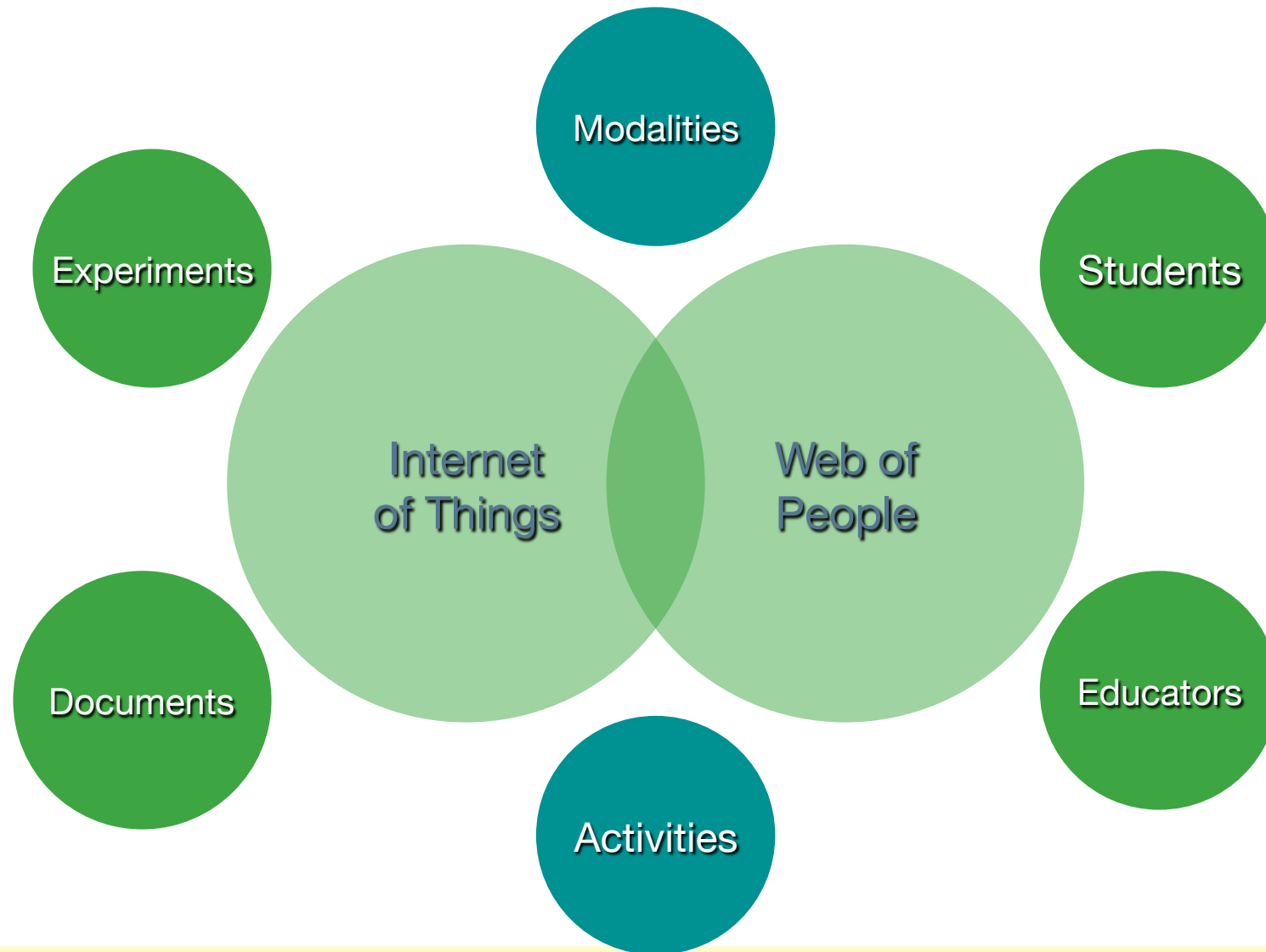
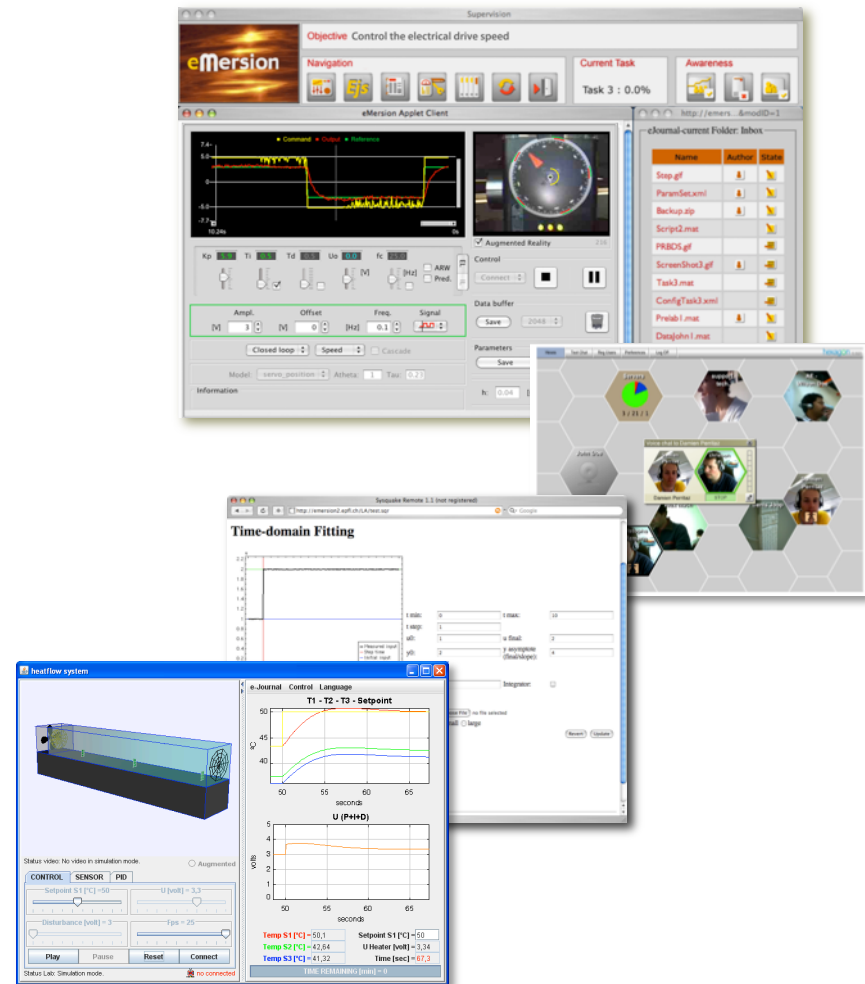**… LMS**

Informal Learning

… PLE
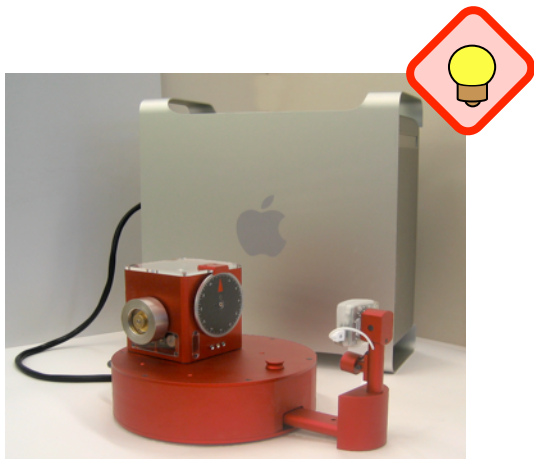

EPFL

Web 2.0 Integration
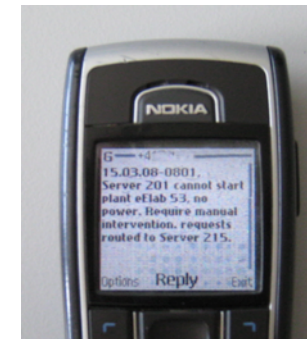
Traditional environment

- Integration to other environments
  - cross deployment with UNED, EJS

- Integration of external tools
  - shared space, analysis tools, video chat

- **User acceptance assessment**!
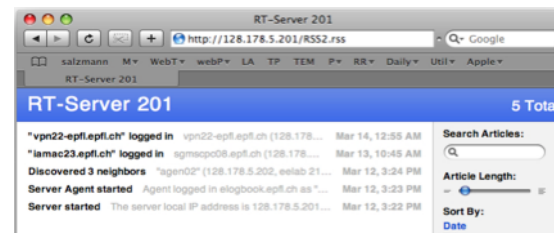 - Improvements needed, go where users are!

Smart device

elogbook agent

SMS: initiate tasks

Same hardware -
enhanced software

RSS feed: self diagnostic

- Way to implement functionalities
- More intelligence at the server side
- No supervision, autonomous actions, push
- Structured to support any protocol
- Agent
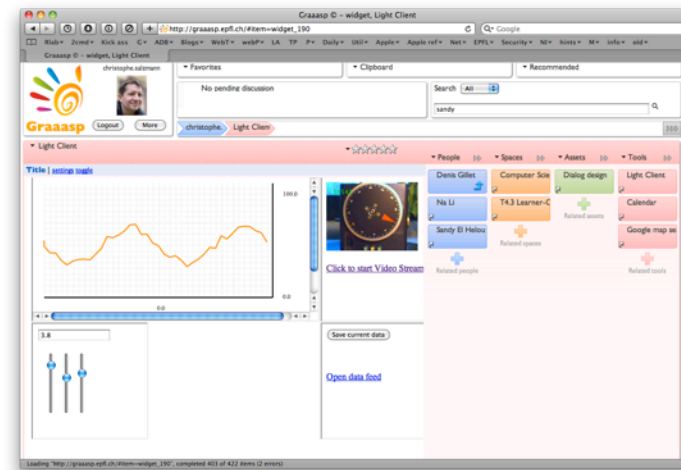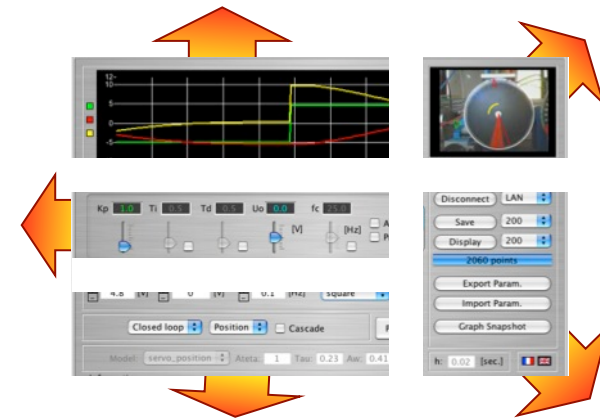- Environment (peers) discovery

eMail: multiple formats

Widget for PLE

- UI is disaggregated into Widgets
- Widget: web application
  - HTML 5 + javascript + CSS
  - Cross browser
  - ~~Java, Flash~~ -> work on iPad/iPhone ☺
  - Mashable

- User can aggregate widgets to create its own environment
  - Mash-up can be share

- Can be integrated in user's **P**ersonal **L**earning **E**nvironment
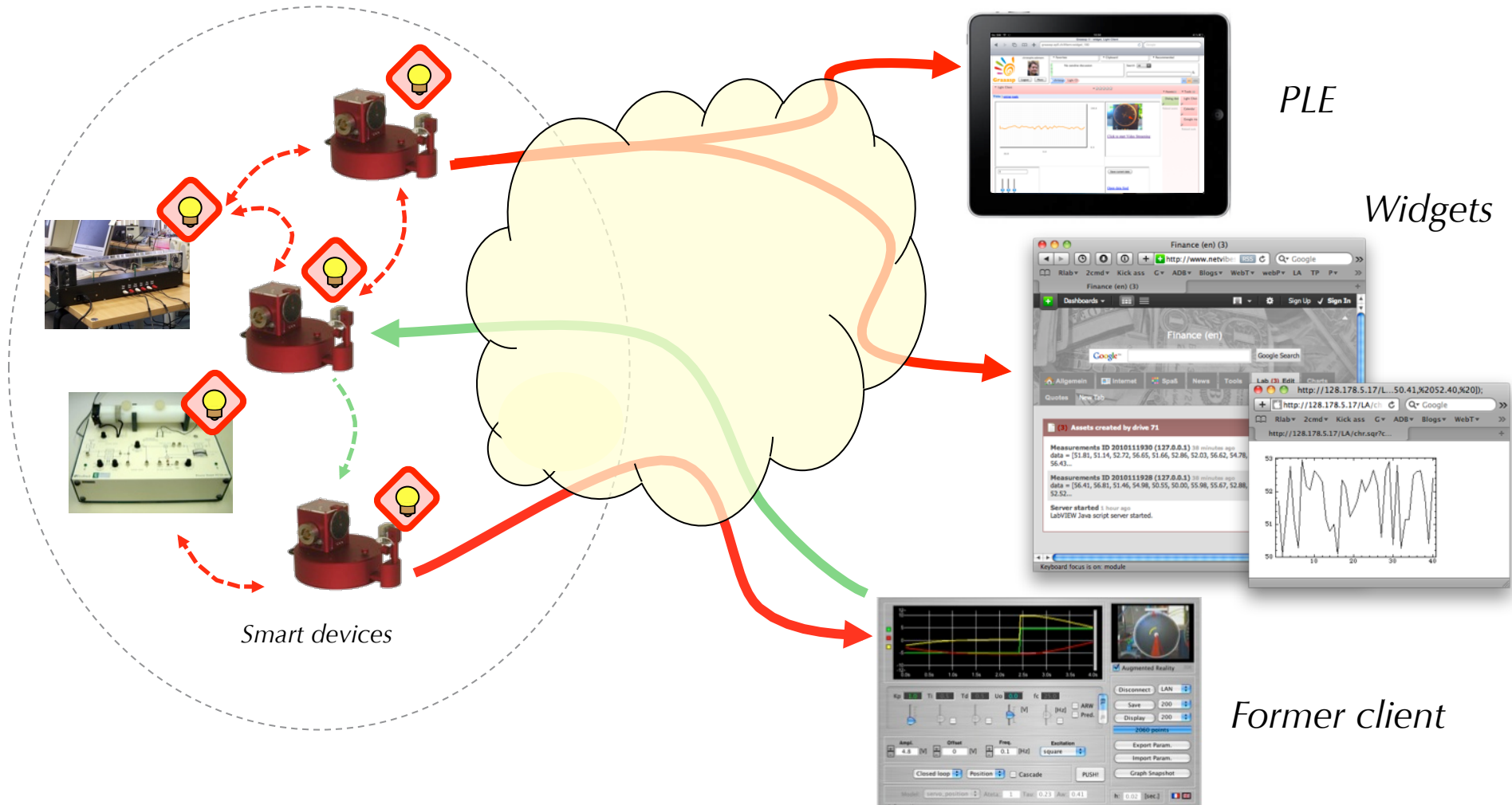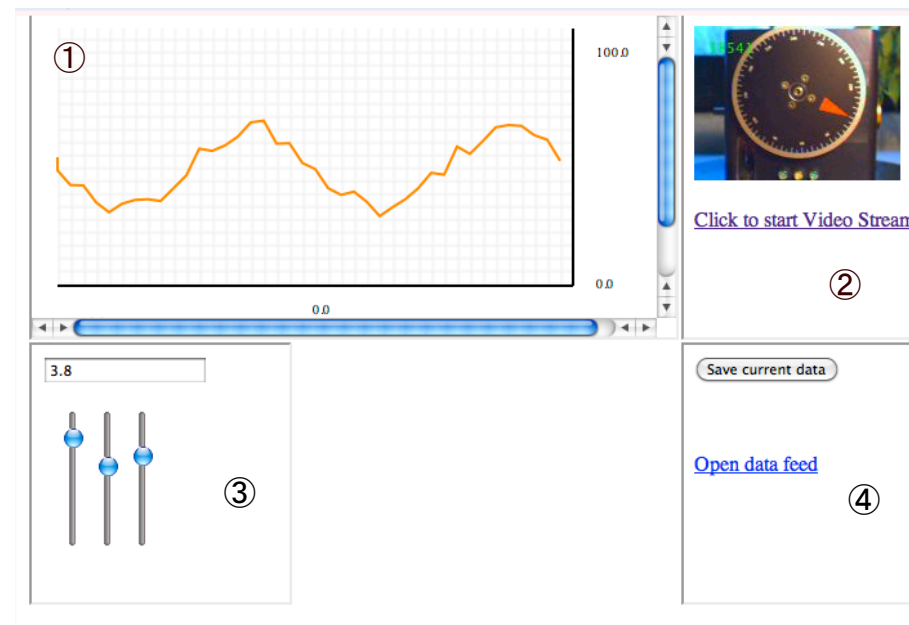
- **User is in control**

Graaasp PLE

Future remote labs

Internet of things

Web of People

PLE

Widgets

Smart devices

Former client

Smart device – protocols examples

1. Graphics
   - build using SVG + javascript
   - transmitted via websocket
2. Video streaming
   - mjpeg
   - Transmitted via smart web push
3. Sliders
   - Javascript + PNG
   - Post
4. Save data
   - XML
   - RSS feed

Links

http://graaasp.epfl.ch

http://react.epfl.ch

http://lawww.epfl.ch/tp

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