POBICOS: IoT Platform for Home and Building

Jarosław Domaszewicz
Institute of Telecommunications
Warsaw University of Technology
Warsaw, Poland
domaszew@tele.pw.edu.pl
POBICOS: IoT Platform for Home and Building

POBICOS


mote: CPU, sensors, actuators

VTT Technical Research Centre of Finland
WUT - Warsaw University of Technology, Poland
CERETETH - Center for Research and Technology Thessaly, Greece
Accenture Technology Labs, France
SAE Automation, s.r.o, Slovakia
CRES - Center for Renewable Energy Sources, Greece

Applications layer
Middleware layer
Object (node) layer
Micro-Agent
Application
Domain Customization
FIA Aalborg
Innovation: support for opportunistic behavior in WSANs

- Object communities differ and evolve.
  - The programmer does not have full knowledge of the target community.

- Opportunistic application should work on top of different communities.
- It should take the best advantage of whatever objects (i.e., sensors and actuators) happen to be available in a target environment.
  - The level of functionality may differ depending on available resources.
  - This should be achievable without excessive programmer’s effort.
- POBICOS supports the above with a specially-tailored API based on soft resource requirements.
POBICOS: IoT Platform for Home and Building

POBICOS stakeholder model

- Carefully specifies stakeholders...
- ... and, in effect, defines a business eco-system.
- Easy to derive business models for particular stakeholders.

- High degree of decoupling:
  - Application development decoupled from object making.
  - Both decoupled from (ad-hoc) platform "deployment".
- Main problem: initial adoption.
- The model can be applied to other platforms.
POBICOS: IoT Platform for Home and Building

Applying mote-based middleware to "legacy" systems

- *Soft Actuation over Cooperating Objects Middleware*, SmartSantander 1st Open Call for Experiments, 03.2012 – 02.2013
- POBICOS, a mote-based middleware, is transformed into a centralized WSAN environment, with *no change to the API*.

Univ. Of Surrey, Smart Campus testbed, Guildford, UK