Towards Real World Object Orientation

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"Definitions"

- **Real World Objects**

  All sorts of tangible, not virtual devices

  Display, PDA, TV, Phone, Ball

- **Object Orientation**

  See Software Engineering

  Objects as instances of abstractions (classes, interfaces)

  Properties and Capabilities

Problem Statement

- Many devices / technologies exist (Particles, Smart-Its, PocketPC, Symbian)

- Different ways of programming for each (high level, low level, hard level)

- Different communication as well

- Hardly any way of combining several of them (neatly)

Example Problem

- Knob based on Pin&Play (N. Villar et al.)
- Java programmable cell phone wi

- Should be easy:
  Get informed on phone when knob changed
 - Technology is available
  - How to connect?

Proposed Solution

- Use existing programming language and environment

- Treat real world objects as common programming objects

- Provide the environment with capabilities to use such objects in an obvious way

Example Solution

Eclipse Plug-in

- sense new devices
- retrieve interface
- create proxy classes
- show and alter properties
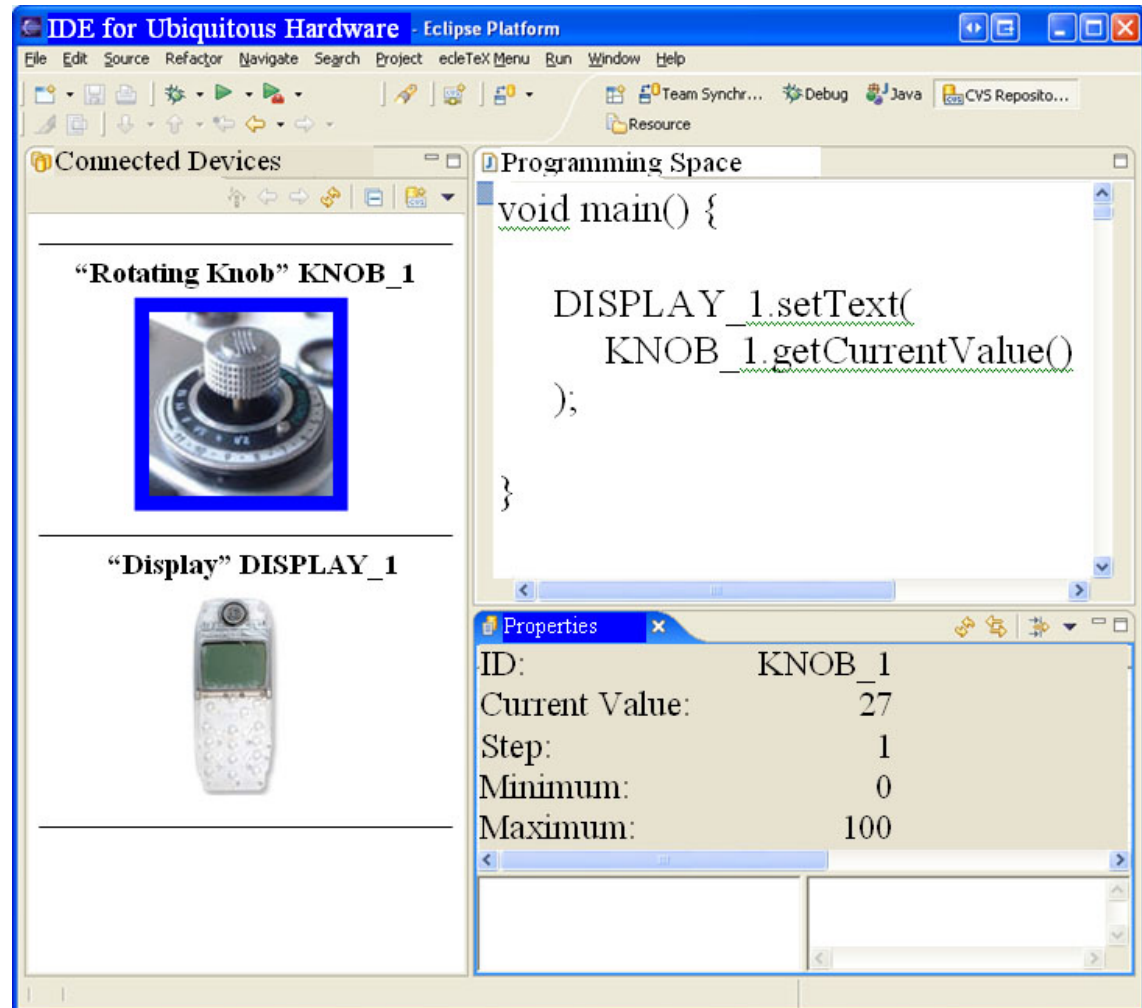
Some Open Questions?

- Categorisation of devices?
- Event based mechanism?
- Is there an object / class hierarchy / inheritance?
- What about abstraction, polymorphism?

- Deploy interfaces on central server / web page associated to each device?
- IDL, suitable interface description language?
- Interface documentation?