MBUI in relationship to ISO/IEC 24752 Universal Remote Console
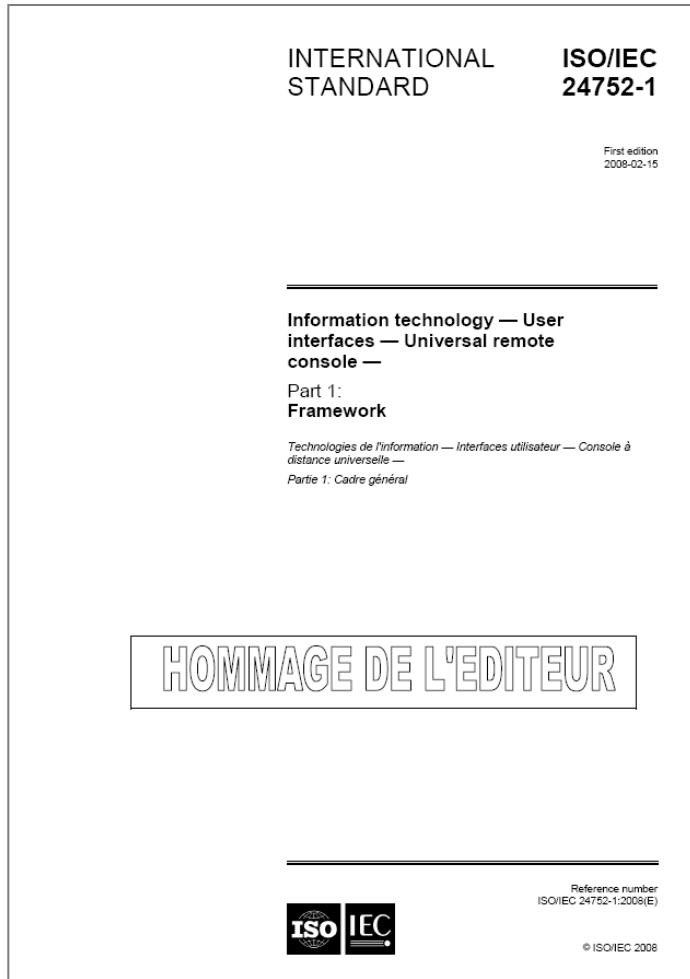
Jochen Frey, Jan Alexandersson, Ingo Zinnikus, DFKI

Gottfried Zimmermann, University of Tuebingen

Gorka Epelde, Vicomtech

"The Universal Remote Console (URC) is a combination of hardware and software that allows a user to control and view displays of any (compatible) electronic and information technology device or service (or "target") in a way that is accessible and convenient to the user."

Universal Remote Console

INTERNATIONAL STANDARD ISO/IEC 24752-1

First edition 2008-02-15

Information technology — User interfaces — Universal remote console —

Part 1: Framework

Technologies de l'information — Interfaces utilisateur — Console à distance universelle —

Partie 1: Cadre général

HOMMAGE DE L'EDITEUR

Reference number ISO/IEC 24752-1:2008(E)

© ISO/IEC 2008

- ISO/IEC 24752
- Standard since 2008
- 5 parts:
  1. Framework
  2. UI Socket Descriptions
  3. Presentation Template
  4. Target Description
  5. Resource Description

Goal: "… to facilitate operation of information and electronic products through **remote and alternative interfaces** and **intelligent agents**"

User Interface Socket Description

```xml
<variable id="temperature" type="xsd:double">
  <dependency>
    <write>false()</write>
  </dependency>
</variable>
```

Variables

```xml
<notify id="checkReset" category="alert">
  <dependency>
    <explicitAck> false() </explicitAck>
    <acknowledge>
      (uis:hasDefinedValue('confirmReset') and uis:value('confirmReset') eq 'done')
      or (uis:hasDefinedValue('cancelReset') and uis:value('cancelReset') eq 'done')
    </acknowledge>
  </dependency>
</notify>
```

Notifications

```xml
<command id="confirmReset" type="uis:basicCommand">
  <dependency>
    <relevant>uis:hasDefinedValue('checkReset') and uis:value('checkReset') eq 'active'</relevant>
    <write>uis:hasDefinedValue('checkReset') and uis:value('checkReset') eq 'active'</write>
  </dependency>
</command>

<command id="cancelReset" type="uis:basicCommand">
  <dependency>
    <relevant>uis:hasDefinedValue('checkReset') and uis:value('checkReset') eq 'active'</relevant>
    <write>uis:hasDefinedValue('checkReset') and uis:value('checkReset') eq 'active'</write>
  </dependency>
</command>
```

Commands

Presentation Template

```
<group id="readings">
  <output id="temperature" ref="http://example.com/thermometer/socket#temperature"/>
  <output id="maximum" ref="http://example.com/thermometer/socket#maximum"/>
  <output id="minimum" ref="http://example.com/thermometer/socket#minimum"/>
</group>


<select1 id="scale" ref="http://example.com/thermometer/socket#scale"/>


<trigger id="reset" ref="http://example.com/thermometer/socket#reset"/>


<modalDialog id="checkReset" ref=" http://example.com/thermometer/socket#checkReset">
  <trigger id="confirmReset" ref=" http://example.com/thermometer/socket#confirmReset"/>
  <trigger id="cancelReset" ref=" http://example.com/thermometer/socket#cancelReset"/>
</modalDialog>
```

Groups

Dialogs

Resource Description

```
<AResDesc rdf:about="http://example.com/thermometer/rsheet.rdf#temperature_label">
  <content rdf:parseType="Literal" xml:lang="en">Temperature</content>
  <useFor rdf:parseType="Collection">
    <Context>
      <eltRef rdf:resource="http://example.com/thermometer/socket#temperature"/>
      <role rdf:resource="http://myurc.org/ns/res#label"/>
    </Context>
  </useFor>
</AResDesc>
```
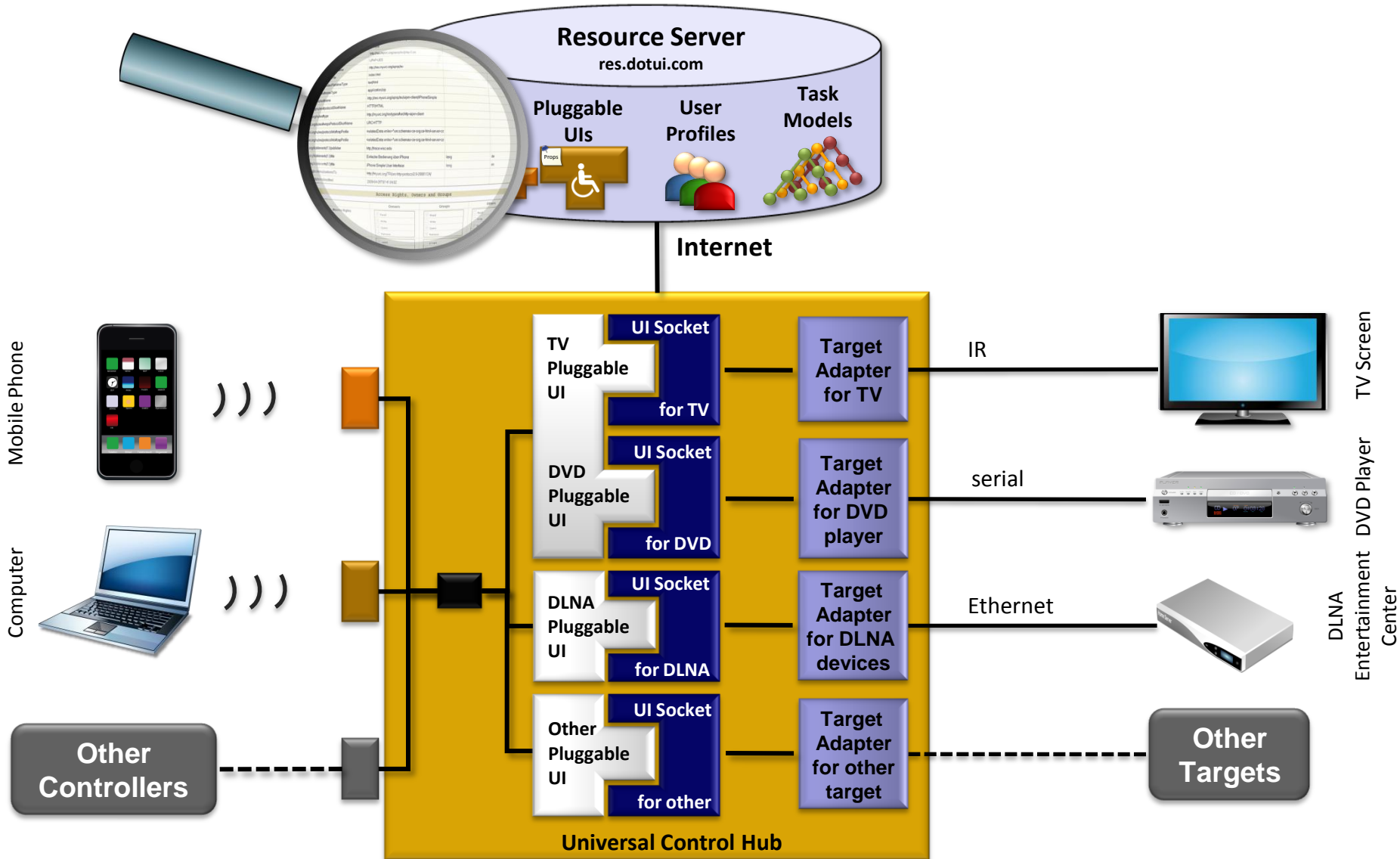
Labels

```
<AResDesc rdf:about="http://example.com/thermometer/rsheet.rdf#temperature_help_hint">
  <content rdf:parseType="Literal" xml:lang="en">Current temperature</content>
  <useFor rdf:parseType="Collection">
    <Context>
      <eltRef rdf:resource="http://example.com/thermometer/socket#temperature"/>
      <role rdf:resource="http://myurc.org/ns/res#help-purpose"/>
    </Context>
  </useFor>
</AResDesc>
```

Help

```
<AResDesc rdf:about="http://example.com/thermometer/rsheet.rdf#checkReset_label">
  <content rdf:parseType="Literal" xml:lang="en">Are you sure you want to reset the maximum and
  minimum temperature?</content>
  <useFor rdf:parseType="Collection">
    <Context>
      <eltRef rdf:resource="http://example.com/thermometer/socket#checkReset"/>
      <role rdf:resource="http://myurc.org/ns/res#label"/>
    </Context>
  </useFor>
</AResDesc>
```
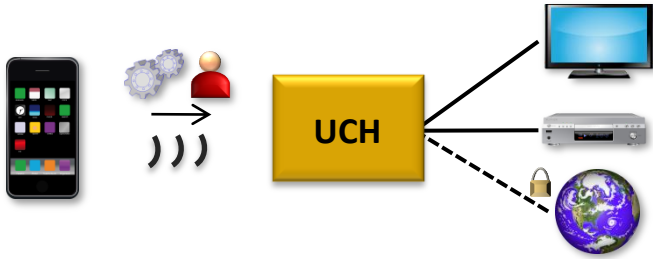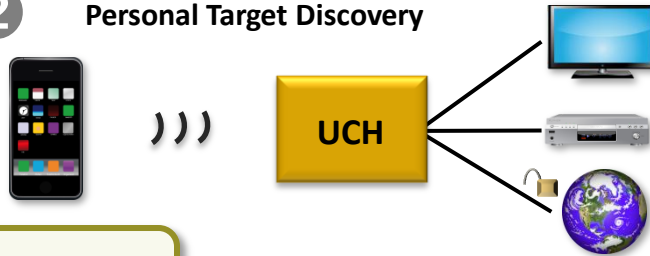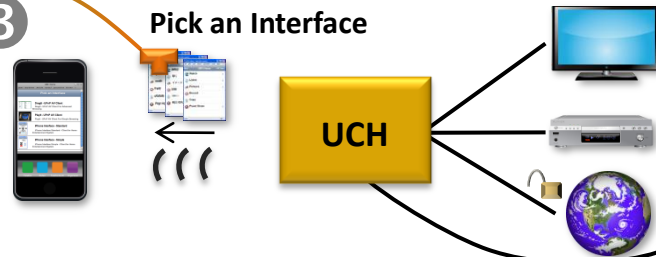
URC Framework

Resource Server
res.dotui.com

Pluggable UIs · User Profiles · Task Models

Internet

Mobile Phone

Computer

Other Controllers

Universal Control Hub

TV Pluggable UI — UI Socket for TV
DVD Pluggable UI — UI Socket for DVD
DLNA Pluggable UI — UI Socket for DLNA
Other Pluggable UI — UI Socket for other

Target Adapter for TV — IR — TV Screen
Target Adapter for DVD player — serial — DVD Player
Target Adapter for DLNA devices — Ethernet — DLNA Entertainment Center
Target Adapter for other target — Other Targets

Resource Server

1 **Connect to UCH**
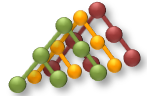**Controller opens Usage-Context**

UCH

Resource Server Benefits

➢ Personalisation

➢ Accessibility

➢ Context Awareness

➢ Openness for 3rd-party Contributions

➢ Support for Agent-Based User Interfaces

➢ Support for Management of User Interfaces

2 **Personal Target Discovery**

UCH

UI List

```
<?xml version="1.0" encoding="UTF-8"?>
<uilist xmlns="urn:schemas-upnp-org:remoteui:uilist-1-0">
  <ui>
    <uiID>UPnP-UES</uiID>
    <name>UES</name>
    <protocol shortName="HTTP/HTML">
      <uri>http://192.168.0.102/UCH/cache?name=http://res.myurc.org/upnp/av/uipm-client/PlayIt</uri>
      <protocolInfo>
        <socketName>http://res.myurc.org/upnp/av/play-1.uri</socketName>
        <uipmClientName friendlyName="PlayIt - UPnP AV Client"
          desc="PlayIt - UPnP AV Client For Simple Browsing"
          >http://res.myurc.org/upnp/av/uipm-client/PlayIt</uipmClientName>
        <targetName>http://res.myurc.org/upnp/av/</targetName>
      </protocolInfo>
    </protocol>
    <protocol shortName="HTTP/HTML">
      <uri>http://192.168.0.102/UCH/cache?name=http://res.myurc.org/upnp/av/uipm-client/iPhoneStandard</uri>
      <protocolInfo>
        <socketName>http://res.myurc.org/upnp/av/play-2.uri</socketName>
        <uipmClientName friendlyName="iPhone Interface - Standard"
          desc="iPhone Interface Standard - Client for Home Entertainment System"
          >http://res.myurc.org/upnp/av/uipm-client/iPhoneStandard</uipmClientName>
        <targetName>http://res.myurc.org/upnp/av/</targetName>
      </protocolInfo>
    </protocol>
    <protocol shortName="HTTP/HTML">
      <uri>http://192.168.0.102/UCH/cache?name=http://res.myurc.org/upnp/av/uipm-client/iPhoneSimple</uri>
      <protocolInfo>
        <socketName>http://res.myurc.org/upnp/av/play-2.uri</socketName>
        <uipmClientName friendlyName="iPhone Interface - Simple"
          desc="iPhone Interface Simple - Client for Home Entertainment System"
          >http://res.myurc.org/upnp/av/uipm-client/iPhoneSimple</uipmClientName>
        <targetName>http://res.myurc.org/upnp/av/</targetName>
      </protocolInfo>
    </protocol>
  </ui>
</uilist>
```
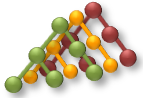
3 **Pick an Interface**
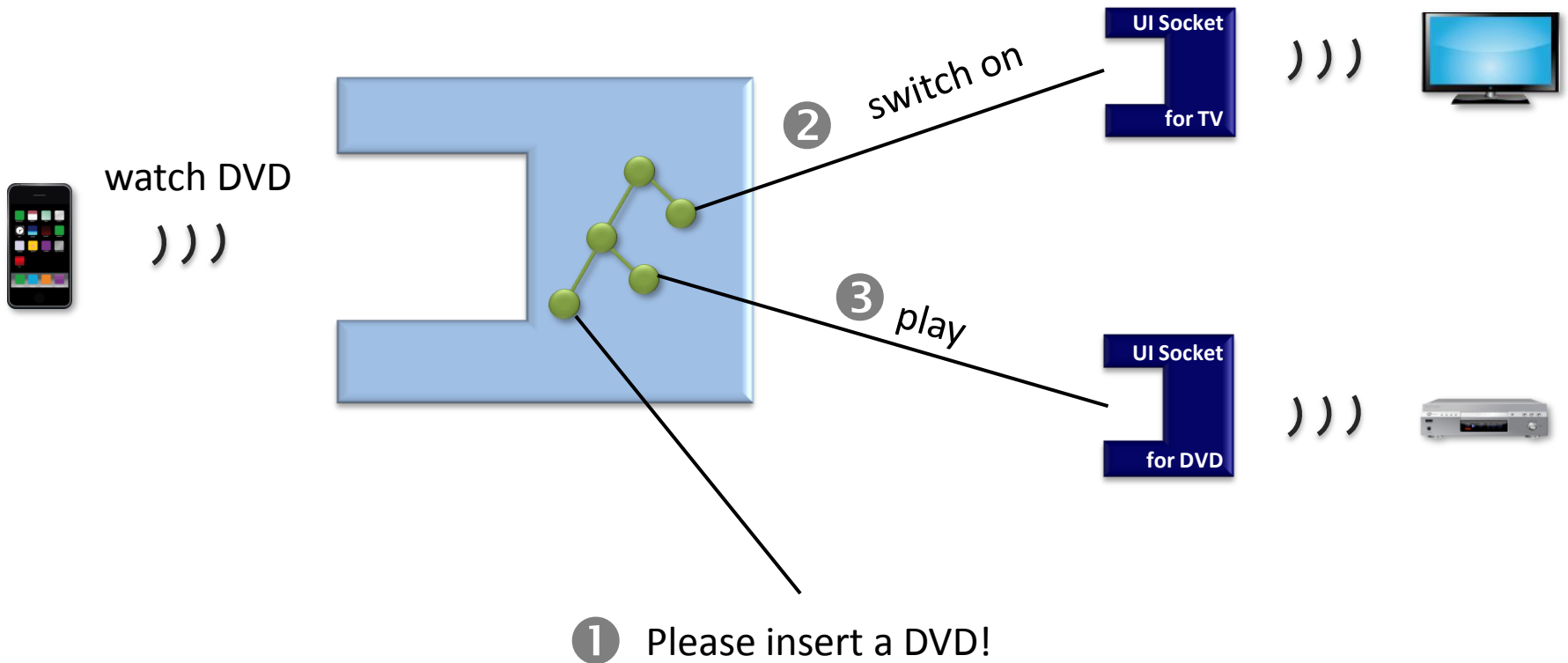
UCH

Resource Server

Activity Management

- Integration of CEA 2018 as one possible task model engine

- Provides a runtime guidance and home automation

- Represented as user interface sockets

- Open for other agent-based user interfaces

Watching DVD

watch DVD

)))

UI Socket **for TV**

2 switch on

)))

3 play

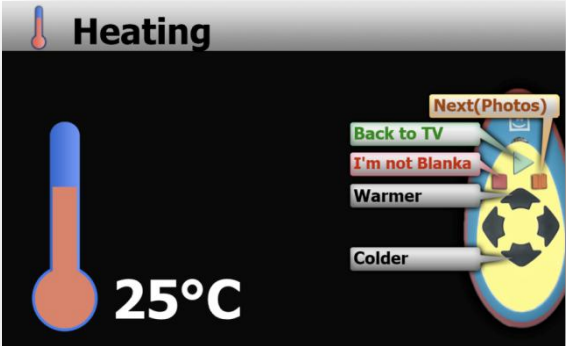**UI Socket** **for DVD**

)))
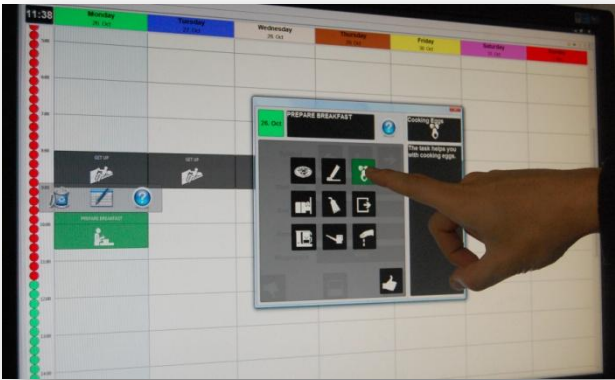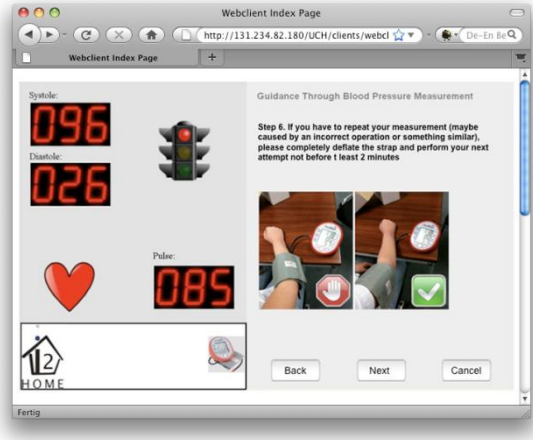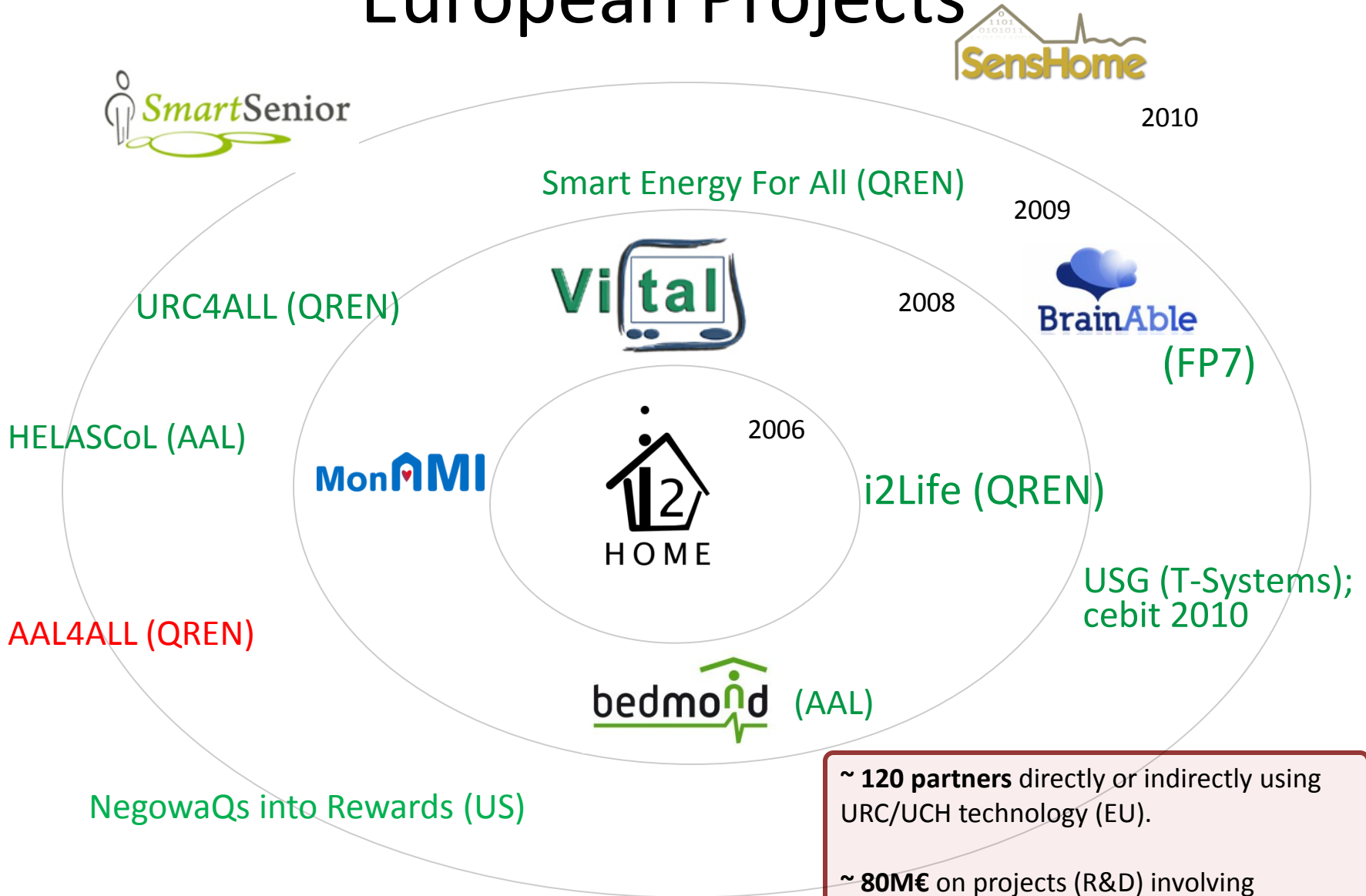
❶ Please insert a DVD!

i2home (EU, FP6, 09.2006 – 12.2009)

1. Implement the ISO/IEC 24752 standard Universal Remote Console (URC)

2. Implement **accessible** user interfaces for **persons with special needs** in a smart home using realistic scenarios:
   - Elderly people
   - Persons suffering from Alzheimer's disease (GDS 3—5)
   - Partially sighted and blind persons
   - Young adults with mild cognitive impairments

3. Evaluate the user interfaces with respect to **feasibility**, **usability** and **accessibility**

User Interfaces

European Projects

SensHome

2010

SmartSenior

Smart Energy For All (QREN)

2009

URC4ALL (QREN)

2008

Vital

BrainAble

(FP7)

HELASCoL (AAL)

2006

MonAMI

i2
HOME

i2Life (QREN)

USG (T-Systems);
cebit 2010

AAL4ALL (QREN)

bedmond (AAL)

NegowaQs into Rewards (US)

~ **120 partners** directly or indirectly using
URC/UCH technology (EU).

~ **80M€** on projects (R&D) involving
URC/UCH technology (EU).

Markets

Public Transport

Mobility

Smart Energy Grids

Home

Automotive

AAL / IL

Autom. & Ctrl

Healthcare

URC Consortium

- www.openURC.org
- International consortium of companies and research organizations promoting the adoption of URC ecosystem
- Open for new members

Thank you!

Questions?