Feedbacks on Eclipse Smarthome/Openhab's Day-to-day deployments

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GSCOP
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Amiqual4Home – a tool for Innovation

- Prototyping workshops
- Mobile equipment for human observation
- Experimental platforms
SmartHome for Experiment

22/01/2018

Eclipse IoT Day Grenoble 2018
SmartHome for Experiment
SmartHome - devices

[Images of various smart home devices]

22/01/2018

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OpenHAB – Eclipse SmartHome

Based on Eclipse SmartHome
Karaf et Equinox (OSGI)
Jetty (http server)
is designed to be absolutely vendor-neutral as well as hardware/protocol-agnostic
can run on any device that is capable of running a JVM (Linux, Mac, Windows)
lets you integrate an abundance of different home automation technologies into one
has a powerful rule engine to fulfill all your automation needs
comes with different web-based UIs as well as native UIs for iOS and Android
is fully open source
is maintained by a passionate and growing community
is easily extensible to integrate with new systems and devices
provides APIs for being integrated in other systems
OpenHAB
OpenHAB - Items

“A core concept for openHAB is the notion of an “item”. An item is a data-centric functional atomic building block - you can think of it as an “capability”. openHAB does not care whether an item (e.g. a temperature value) is related to a physical device or some “virtual” source like a web service or an calculation result. All features offered by openHAB are using this “item” abstraction”
## OpenHAB - Items

<table>
<thead>
<tr>
<th>Item Name</th>
<th>Description</th>
<th>Command Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Color information (RGB)</td>
<td>OnOff, IncreaseDecrease, Percent, HSB</td>
</tr>
<tr>
<td>Contact</td>
<td>Status of contacts, e.g. door/window contacts</td>
<td>OpenClose</td>
</tr>
<tr>
<td>DateTime</td>
<td>Stores date and time</td>
<td>-</td>
</tr>
<tr>
<td>Dimmer</td>
<td>Percentage value for dimmers</td>
<td>OnOff, IncreaseDecrease, Percent</td>
</tr>
<tr>
<td>Group</td>
<td>Item to nest other items / collect them in groups</td>
<td>-</td>
</tr>
<tr>
<td>Image</td>
<td>Binary data of an image</td>
<td>-</td>
</tr>
<tr>
<td>Location</td>
<td>GPS coordinates</td>
<td>Point</td>
</tr>
<tr>
<td>Number</td>
<td>Values in number format</td>
<td>Decimal</td>
</tr>
<tr>
<td>Player</td>
<td>Allows control of players (e.g. audio players)</td>
<td>PlayPause, NextPrevious, RewindFastforward</td>
</tr>
<tr>
<td>Rollershutter</td>
<td>Roller shutter item, typically used for blinds</td>
<td>UpDown, StopMove, Percent</td>
</tr>
<tr>
<td>String</td>
<td>Stores texts</td>
<td>String</td>
</tr>
<tr>
<td>Switch</td>
<td>Switch item, typically used for lights (on/off)</td>
<td>OnOff</td>
</tr>
</tbody>
</table>

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OpenHAB - Items

- Reflects a function of an object
- Rule engine
- Scripts
- Persistence services
- Configurable user interfaces
- APIs (REST, MQTT)
OpenHAB – Simple Rule

```python
rule I8_Gauche_Haut_court

when Item I8_Gauche_Haut received update ON
then
sendCommand(L11, 100)
end
```
SmartHome - Showroom
SmatHome – Showroom
SmartHome – Experiments
SmartHome – Items

- Items without binding
- Item reflects a concept
  - Configuration
  - Ambience
- More complex rules
  - HttpRequest
  - CommandLine
SmartHome – Expérimentations
SmartHome – Dataset creation

Dataset Orange4Home

“*A Dataset of Routine Daily Activities in an Instrumented Home*” (J. Cumin et al.)

- 180 heures d’enregistrement d’activités de vie quotidienne
- 4 semaines consécutives de jours ouvrés
- données provenant de 236 capteurs
- 20 classes d’activités labélisées
- 493 instances d’activités
SmartHome – Dataset creation

ContextAct@A4H Dataset
“Real-Life Dataset of Daily-Living Activities” (P. Lago et al.)
- 28 days and nights
- Annotations, new sensors

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amqual4home.inria.fr/contextacta4h-dataset/
A4H-Smart-Energy dataset

- 1200 mesures every 10 minutes
- Storing in a database
- 50 compteurs électriques
- 8 compteurs thermiques
- 48 contrôleurs de bureau
  - présence (mouvement)
  - température
  - Luminosité
  - ouverture des fenêtres
  - consignes et état de la ventilation et du chauffage/climatisation.
Minikits - CNAC

Energetic diagnosis
Raising public awareness
Amigual4Home - Make Elec >
Connected Shop

Simulates a clothing shop

- Technological showroom
- Experimentations
- Pedagogic support
Plexus – Connected Shop

- RFID
- Colored lights
- Music
- Videos
- Cameras
- Like counter
- Website
- Blockchain checkout
- Facial Recognition
- Robots (RobAIR!!)
- Sensors (fieldcloud.com)
Plexus – Connected Shop

- Automation
  - Fun demonstrations
  - Minimize human intervention
  - Specific for courses/experimentations

- Reliability
  - More than 2500 visitors in one year
  - Dozens of courses/experimentations
  - Often without technical staff
GEM Plexus - Shop
GEM Plexus - Shop
GEM Plexus - Auditorium

TableMixage

ConsoleDMX