

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

Nicolas Bonnefond

inria





INRIA Grenoble Rhône-Alpes Centre de Recherche  
Laboratoire Informatique de Grenoble

FR Innovacs

G2ELab

GSCOP

Schneider Electric



Eclipse IoT Day Grenoble 2018



# Amiqua4Home – a tool for Innovation

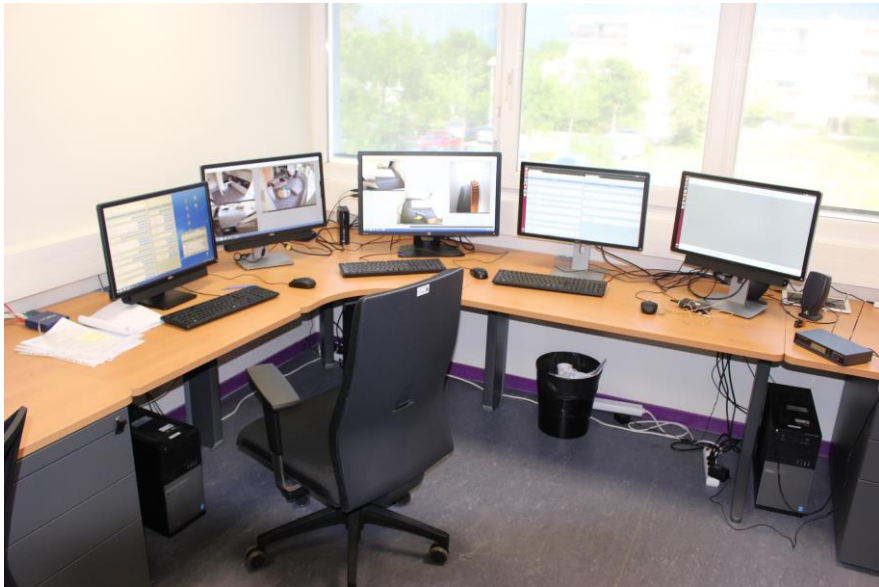
- Prototyping workshops
- Mobile equipment for human observation
- Experimental platforms



# SmartHome for Experiment



# SmartHome for Experiment



# SmartHome - devices



# 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

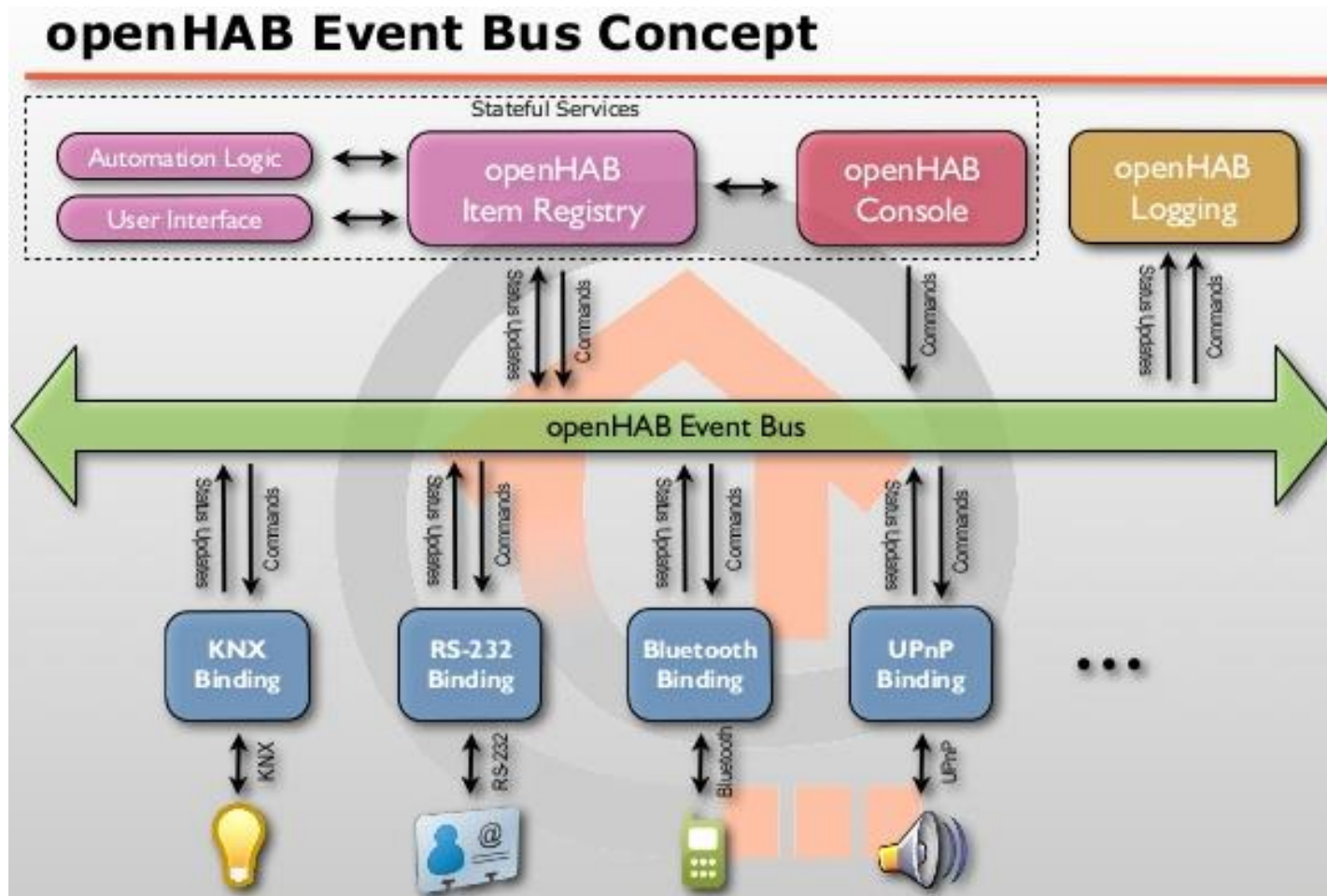
is maintained by a passionate and growing community

is easily extensible to integrate with new systems and devices

provides APIs for being integrated in other systems



# OpenHAB

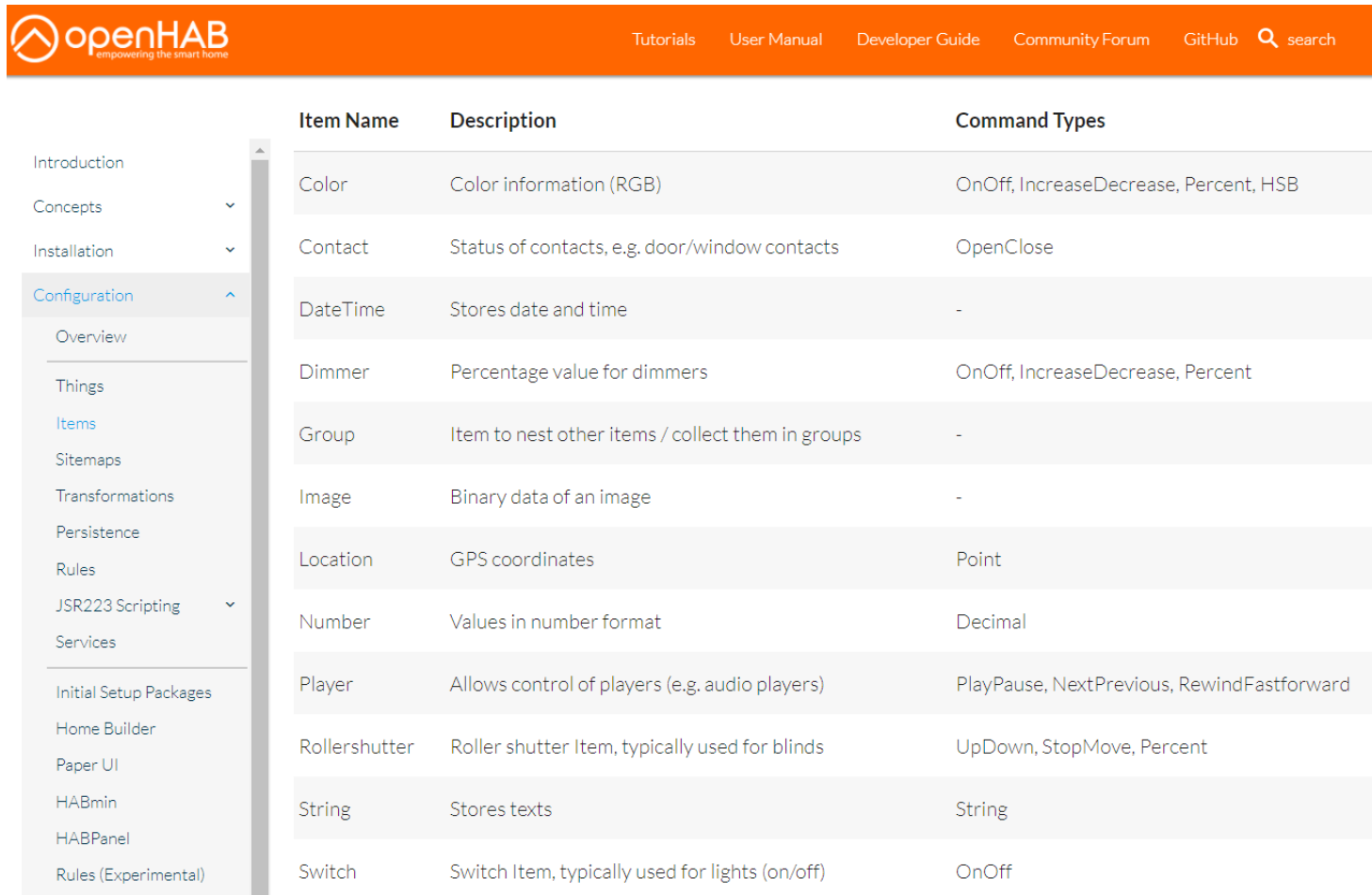




# OpenHAB - Items

“ 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



openHAB  
empowering the smart home

Tutorials User Manual Developer Guide Community Forum GitHub search

Introduction  
Concepts  
Installation  
Configuration  
Overview  
Things  
Items  
Sitemaps  
Transformations  
Persistence  
Rules  
JSR223 Scripting  
Services  
Initial Setup Packages  
Home Builder  
Paper UI  
HABmin  
HABPanel  
Rules (Experimental)

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

# OpenHAB - Items

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

# OpenHAB – Simple Rule

```
rule I8_Gauche_Haut_court
```

```
when Item I8_Gauche_Haut received update ON
```

```
then
```

```
  sendCommand(L11 , 100)
```

```
end
```

# SmartHome - Showroom



# SmathHome – Showroom



# SmartHome – Experiments

The screenshot displays a smart home control interface for the kitchen area, titled "Cuisine". The interface is organized into several sections, each with a lightbulb icon and a list of controls:

- Messages:** "Bruits Cuisine" with buttons: PAS COMPRIS, PAS MOT CLE, OUI, NON.
- Lampes:**
  - "Spot cuisine" with buttons: ON, OFF, PLUS, MOINS.
  - "Plan de travail cuisine" with buttons: ON, OFF, PLUS, MOINS.
  - "Spot Escalier" with buttons: OFF, ON, PLUS, MOINS.
- Volets:**
  - "Volets RDC" with buttons: MONTER, DESCENDRE, STOP.
  - "Volet Terrasse" with buttons: MONTER, DESCENDRE, STOP.
- Bouilloire:** "Bouilloire" with buttons: ON, OFF.
- Radio:**
  - "Radio Cuisine" with buttons: INTER, CHERIEFM, ON, OFF.
  - "Volume Cuisine" with buttons: PLUS, MOINS, ON, OFF.
- RDC:** "lampes RDC" with buttons: OFF, ON, PLUS, MOINS.
- Partout:**
  - "Lampes Appartement" with buttons: OFF, ON, PLUS, MOINS.
  - "Volets Appartement" with buttons: MONTER, DESCENDRE, STOP.

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# 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

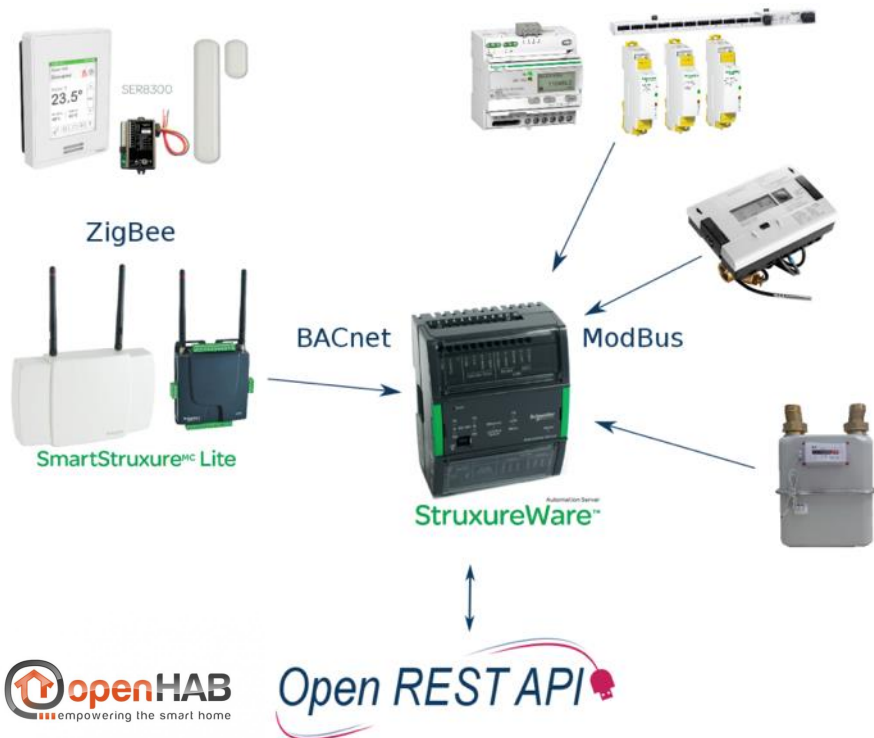
## ContextAct@A4H Dataset

“Real-Life Dataset of Daily-Living Activities” (P. Lago et al.)

- 28 days and nights
- Annotations, new sensors



# A4H-Smart-Energy dataset

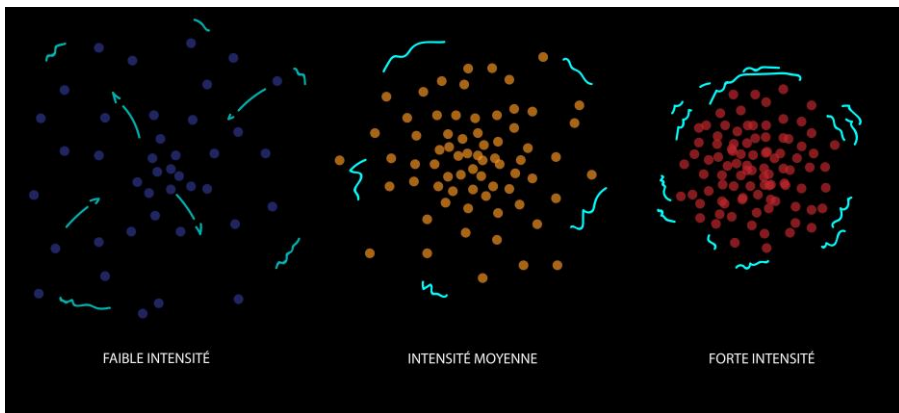
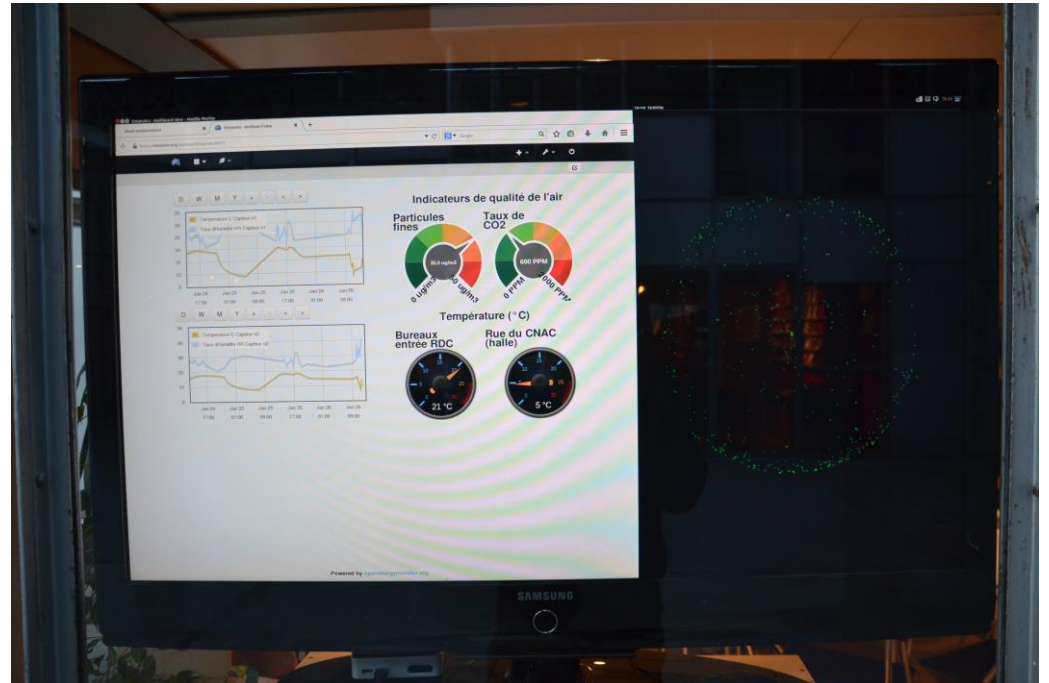


- 1200 mesures every 10 minutes
- Storing in a database
- 50 compteurs électriques
- 8 compteurs thermiques
- 48 contrôleurs de bureau
  - présence (mouvement)
  - température
  - Luminosité
  - ouverture des fenêtres
  - consignes et état de la ventilation et du chauffage/climatisation.

# Minikits - CNAC



Energetic diagnosis  
Raising public awareness



# Amiqua4Home - Make Elec >





**GRENOBLE  
ECOLE DE  
MANAGEMENT**  
TECHNOLOGY & INNOVATION

# Connected Shop



Simulates a clothing shop



- Technological showroom
- Experimentations
- Pedagogic support

# Plexus – Connected Shop

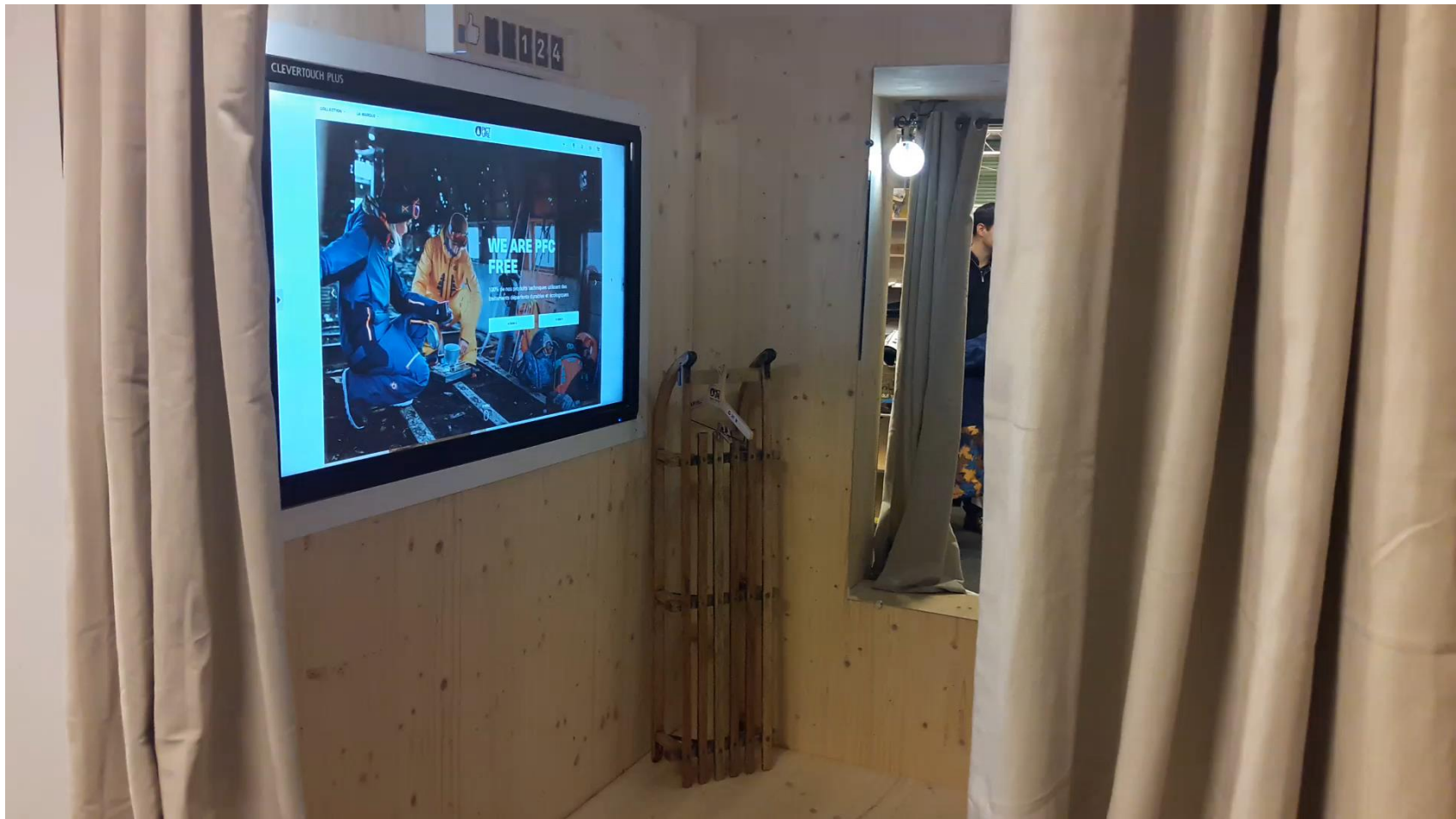
- RFID
- Colored lights
- Music
- Videos
- Cameras
- Like counter
- Website
- Blockchain checkout
- Facial Recognition
- Robots ( RobAIR!! )
- Sensors ([fieldcloud.com](http://fieldcloud.com))



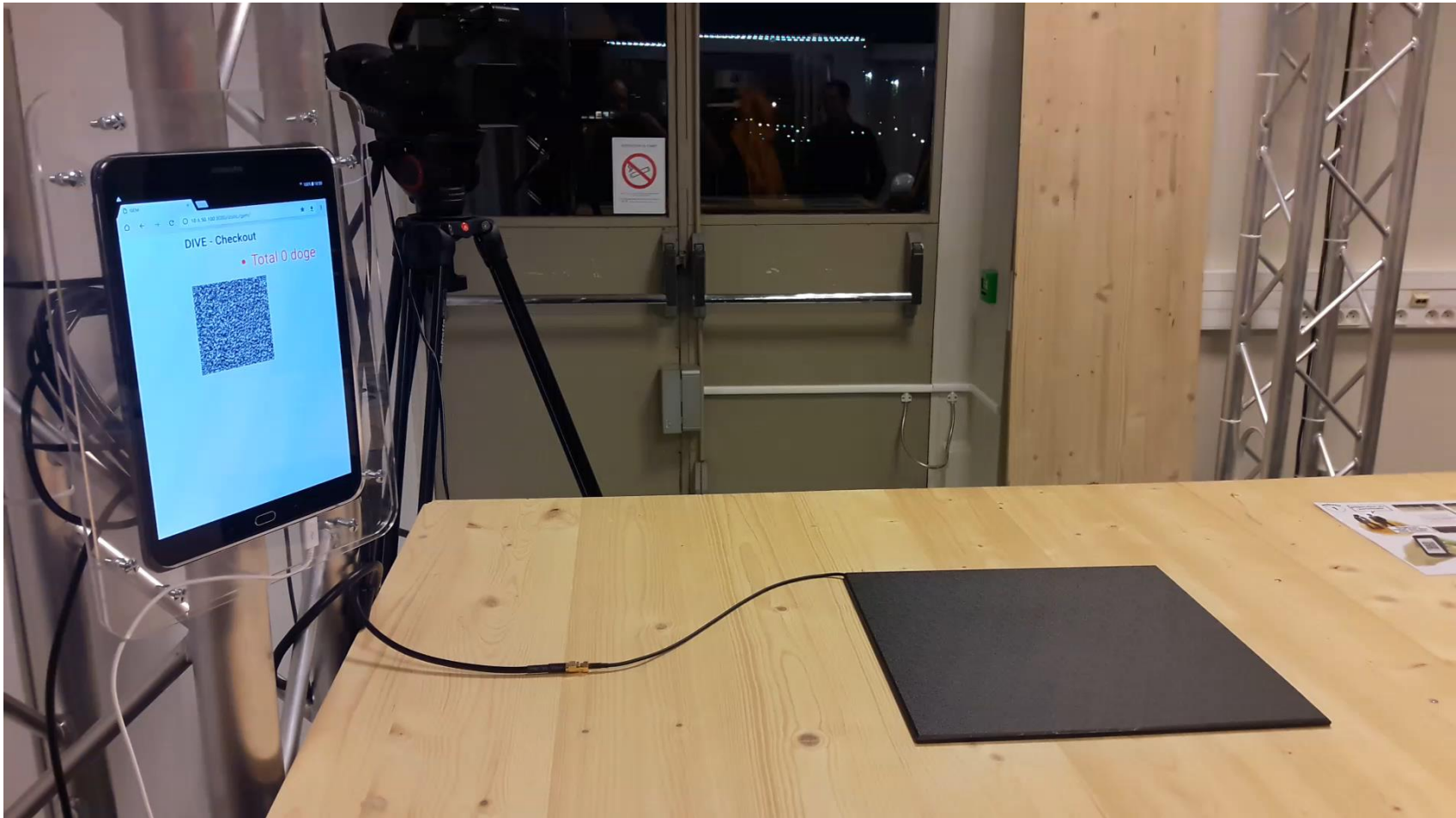
# Plexus – Connected Shop

- 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

Cols de Cygne	Ambiance Plafond	HF1	Regie Mobile	Meuble	Pupitre	Enceintes Gauche/Droite	Double Projection	PC Pupitre Seul
0	100	39	48	0	69	26		
0	0	0	0	0	0	0	PC Meuble Seul	Capt Pupitre
			Enceintes Rappels				Capt Meuble	Visio Pupitre
			90				Visio Multicam	Preset 1 2 7
			34					

### ConsoleDMX

Plein Feu	Pupitre	Meuble	Lumieres	Lumieres OFF				
0	0	0	0					
	Pupitre ON						PARS Mode Musique	PARS LEDs Mode Speed 100
							PARS Mode MegaMix	
							PARS Mode FadeInOut	
							PARS Mode Chase12	

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