

#BCX17 #BCXCB CONNECTED BUILDING & CITY

Take a glimpse...

Bosch Security Systems: Security Cameras

Which (telemetry) data is available?

- ▶ *Optical sensor*
- ▶ *Audio sensor*
- ▶ *Events*

How to access data?

- ▶ *Webbrowser*
(recommended IE with ActiveX enabled)
- ▶ *BoschVideoSDK*
- ▶ *RTSP client (e.g. VLC player)*

How to interact with the device or the system?

- ▶ *Get Videostream (RTSP, RTP)*
- ▶ *Interfaces HTTP / RCPP / CGI / ONVIF*
- ▶ *Set up IVA tasks (ActiveX)*
- ▶ *Get autonomous triggered alarms / events*
- ▶ *Alarm email / messages*

Anything else that is important for the hackers?

- ▶ *MicrosoftCognitiveServiceExample (C# example for connection to the camera and analyze data via MS Cognitive Services)*
- ▶ *Alarm task script example (own Bosch script language)*
- ▶ *RCP+ and VideoSDK documentation will be provided*
- ▶ *CognitiveServiceExample (Java example)*

What events are available?

- | | |
|-------------------------------------------|-------------------------------------|
| ▶ <i>Object in/entering/leaving field</i> | ▶ <i>Bird Eye View Counter</i> |
| ▶ <i>Route following</i> | ▶ <i>Condition Change</i> |
| ▶ <i>Loitering</i> | ▶ <i>Similarity/Forensic Search</i> |
| ▶ <i>Idle/removed objects</i> | ▶ <i>Tamper detection</i> |
| ▶ <i>Crowd Density Estimation</i> | ▶ <i>Flow in field</i> |
| ▶ <i>Counter</i> | ▶ <i>Counter flow in field</i> |

#BCX17 HackChallenge Building & City

Microsoft

The Services

- ▶ *Cognitive Services APIs for vision, speech and language understanding*
- ▶ *Compute/Storage/Network/App Services*
- ▶ *Intelligence and Data Analysis/Machine Learning*
- ▶ *Bot Framework and more...*



The Cloud

- ▶ *Azure Cloud Services*
- ➔ *Ask your Hack Coach for free passes*



The Tools

- ▶ *Program Language and Dev Tool of your choice or use Visual Studio / Visual Code*
- ▶ *Azure SDK's and REST API's*
- ▶ *Unity for Hololens*



The Hardware



Surface Hub



Hololens

The Help

- ▶ *Links to tool, SDK's, API documentation on Hackathon server*
- ▶ *Samples and Code on GitHub*
- ▶ *The Hack Coaches from the Microsoft team*



#BCX17 HackChallenge Building & City

Zumtobel Group

Which (telemetry) data is available?

- ▶ *Intensity of luminaire*
- ▶ *Color temperature (=CT) of luminaire*
- ▶ *Current scene*
- ▶ *Presence sensor values, brightness sensor values*

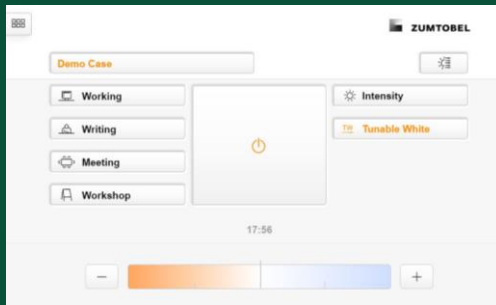
How to access data?

- ▶ *Via Bosch Connected Building API*

How to interact with the device or the system?

- ▶ *Via Bosch Connected Building API*
- ▶ *Read intensity, CT, scene, presence & brightness values*
- ▶ *Change intensity, CT*

We provide a LITECOM demo setup with a pre-configured topology



What events are available?

- ▶ *See Bosch Connected Building API*

Bosch Software Innovations: Connected Building Solution

Which (telemetry) data is available?

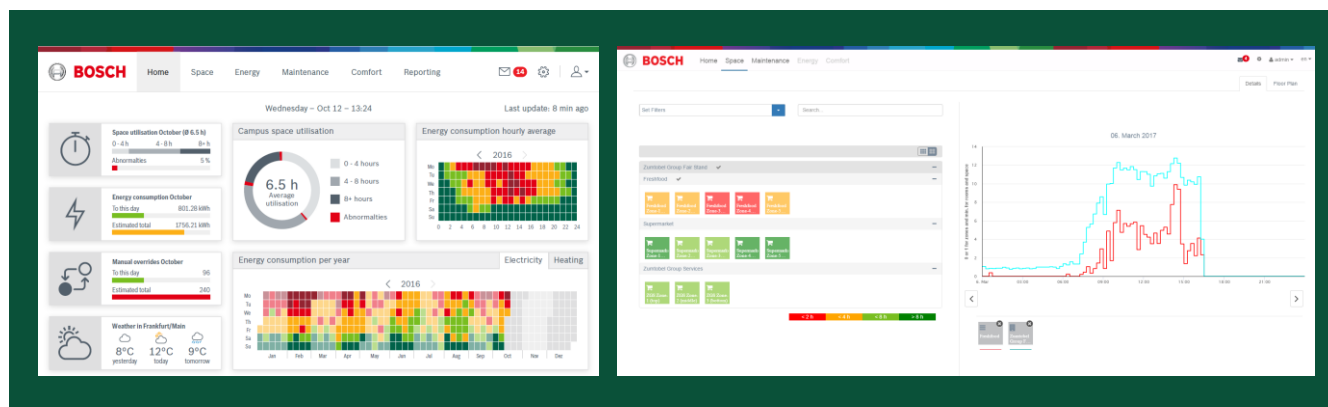
- ▶ *Device Shadow: Actual state of all ZUMTOBEL (or DALI) devices which are connected to a LITECOM controller (system)*
- ▶ *Time series data for space usage (from presence sensors)*

Open APIs (REST)

- ▶ *Management of the building topology and devices on a campus (in buildings)*
- ▶ *Send Commands to the LITECOM devices (e.g. activate or deactivate a light scene)*
- ▶ *Reports management to configure the data which is shown in the dashboard*

How to access data?

- ▶ **HTTPS (Internet)**
- ▶ **Open API (REST)**
- ▶ **Dashboard**



Where to get Information ?

- ▶ *API descriptions are embedded in the Connected Building Dashboard*
- ▶ **Open API (Swagger) Online Documentation for all REST APIs**

#BCX17 HackChallenge Building & City

Kontakt.io

Which data is available?

- ▶ *GET /presence - Returns beacons' presence in given period of time.*
- ▶ *GET /presence/dwelltime/item - where was a beacon tag over time?*
- ▶ *GET /presence/contact - which beacon tags were near other tags?*

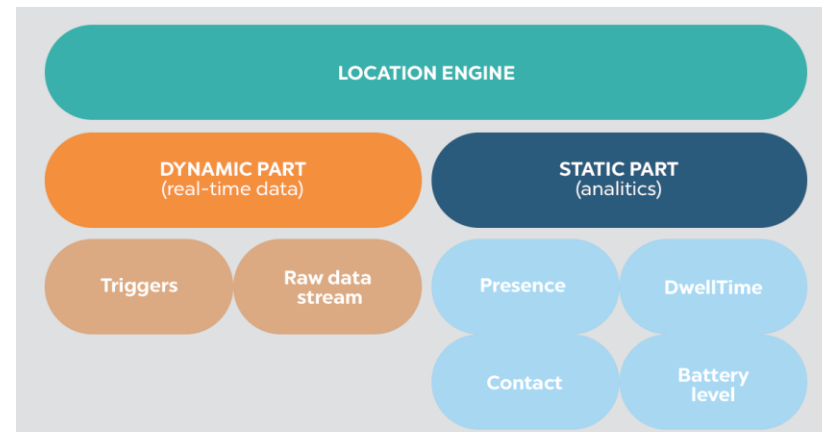
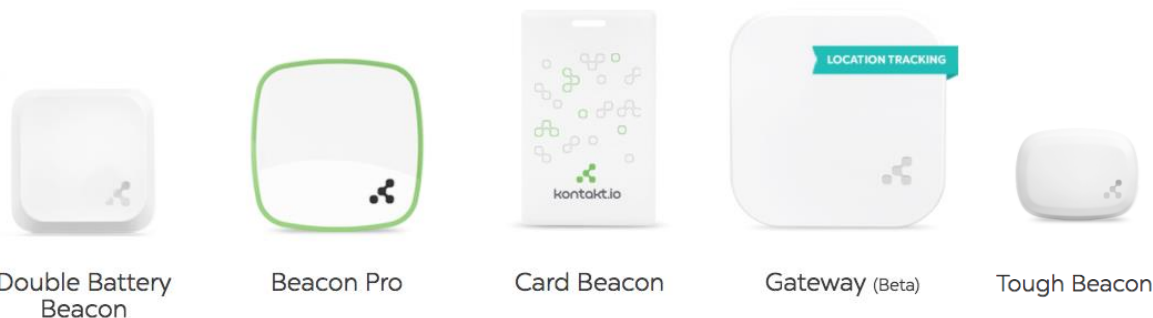
How to access data?

- ▶ *Kontakt.io Proximity REST API*
- ▶ *Location Engine REST API*

How to interact with the device or the system?

- ▶ *Kontakt.io Administration App*
- ▶ *API DOCS & SDK*

Kontakt.io Hardware



#BCX17 HackChallenge Building & City

Bosch Thermotechnology

Which (telemetry) data is available?

- ▶ **Bosch RRC: *User Mode, Indoor Temp.* (actual, target), *Outdoor Temp.*, *Burner Status*, *Clock Program* => **READ / WRITE****
- ▶ **Home Coach (HC): *Temp.* (actual, max, min, date), *Humidity* (actual, max, min, date), *CO2* (measures, date), *Noise* (actual, max, min, date), *Device* (wifi status, name, etc.) => **READ****
- ▶ **Venta: *on/off* via Wifi Plug TP-Link => **READ/WRITE****
- ▶ **Amazon Echo: *Speech to Text* and *Text to Speech* => **READ/WRITE****
- ▶ **RRC Skill for Alexa: *Temp.* (actual room, target room, actual outdoor), *Mode* (manual/ auto)**

How to access data?

- ▶ **RRC: *REST Backend API*, *Alexa Skill*, *IFTTT***
- ▶ **HC: *REST Backend API*, *IFTTT***
- ▶ **Venta: *Wifi Plug with API*, *Detection by Echo***
- ▶ **Echo: *Backend API*, *IFTTT***

The Products

Bosch RRC

netatmo Home Coach

Venta LW25 / TP Link HS110

Amazon Echo



Smart Room Thermostat



Air Quality Monitor



Air Humidifier / Washer



Wifi Plug



Smart Loudspeaker

Where to get Information ?

- ▶ *API descriptions available on Hackathon documentation server*
- ▶ *API descriptions available at netatmo and AWS websites*

#BCX17 HackChallenge Building & City Sigfox & NXP

What is available?

Sigfox Network

SigFox Sens'it

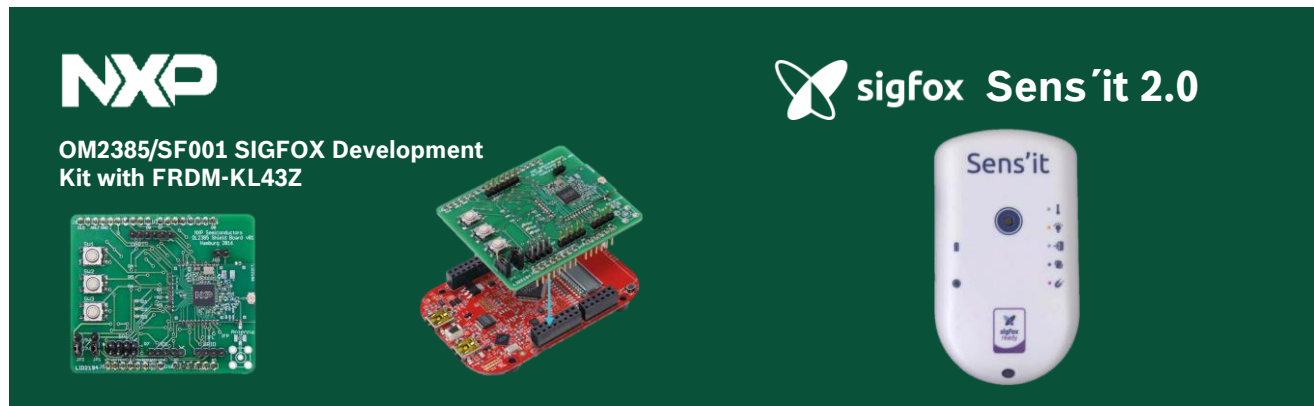
- ▶ Temperature
- ▶ Humidity
- ▶ Movement (3-axis accelerometer)
- ▶ Magnetometer
- ▶ Light

NXP On KL43Z

- ▶ 48MHz, 256KB Flash, 32KB SRAM, 16K ROM based bootloader, segment LCD, USB device (FS)
- ▶ 64 LQFP Capacitive touch slider, MMA8451Q accelerometer, MAG3110 magnetometer.
- ▶ Flexible power supply options – USB, coin cell battery, external source
- ▶ Form factor compatible with Arduino™ R3 pin layout
- ▶ OpenSDA debug interface directly via USB

NXP On OL2385

- ▶ Supports SIGFOX in FCC and ETSI modes (RCZ1-4)
 - ▶ SIGFOX P1 certified
 - ▶ Max Power 12dBm
 - ▶ Sends and receive SIGFOX messages over radio as commanded by KL43z Host Micro
 - ▶ SPI interface to host micro up to 1Mbps
- See our sample integration with Sigfox backend*



Where to get Information ?

- ▶ On NXP Website provides documentation and sample source code
- ▶ On Sigfox Sens'it Website
- ▶ On Hackathon Server (User Man/ Data)

SEE YOU IN BERLIN!

#BCX17 #BCXCB



Marita Klein
@riddy_3

marita.klein@bosch-si.com
+49 711 811-58610

Follow us on



Bosch ConnectedWorld Blog