# Pilotstudie: Fernüberwachung von Bahnhofsuhren mit LoRaWAN

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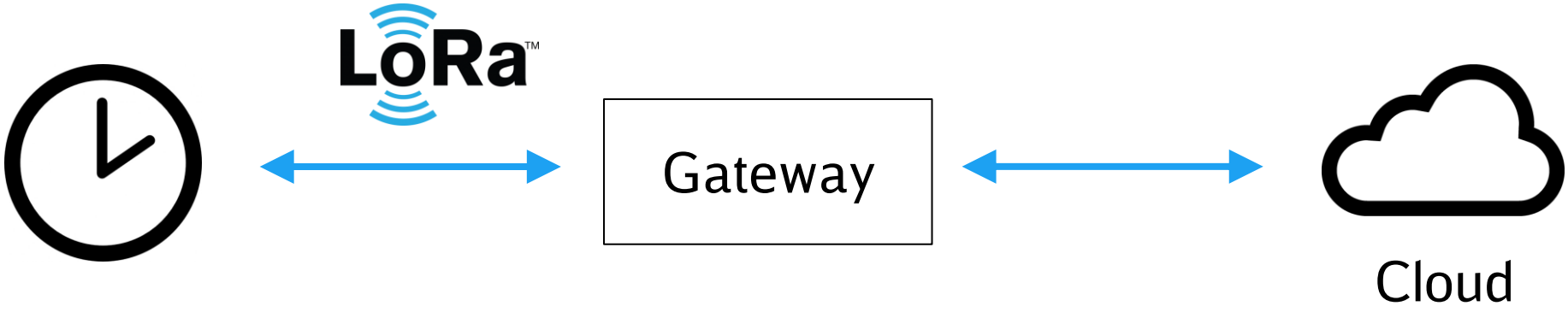
DB NETZE

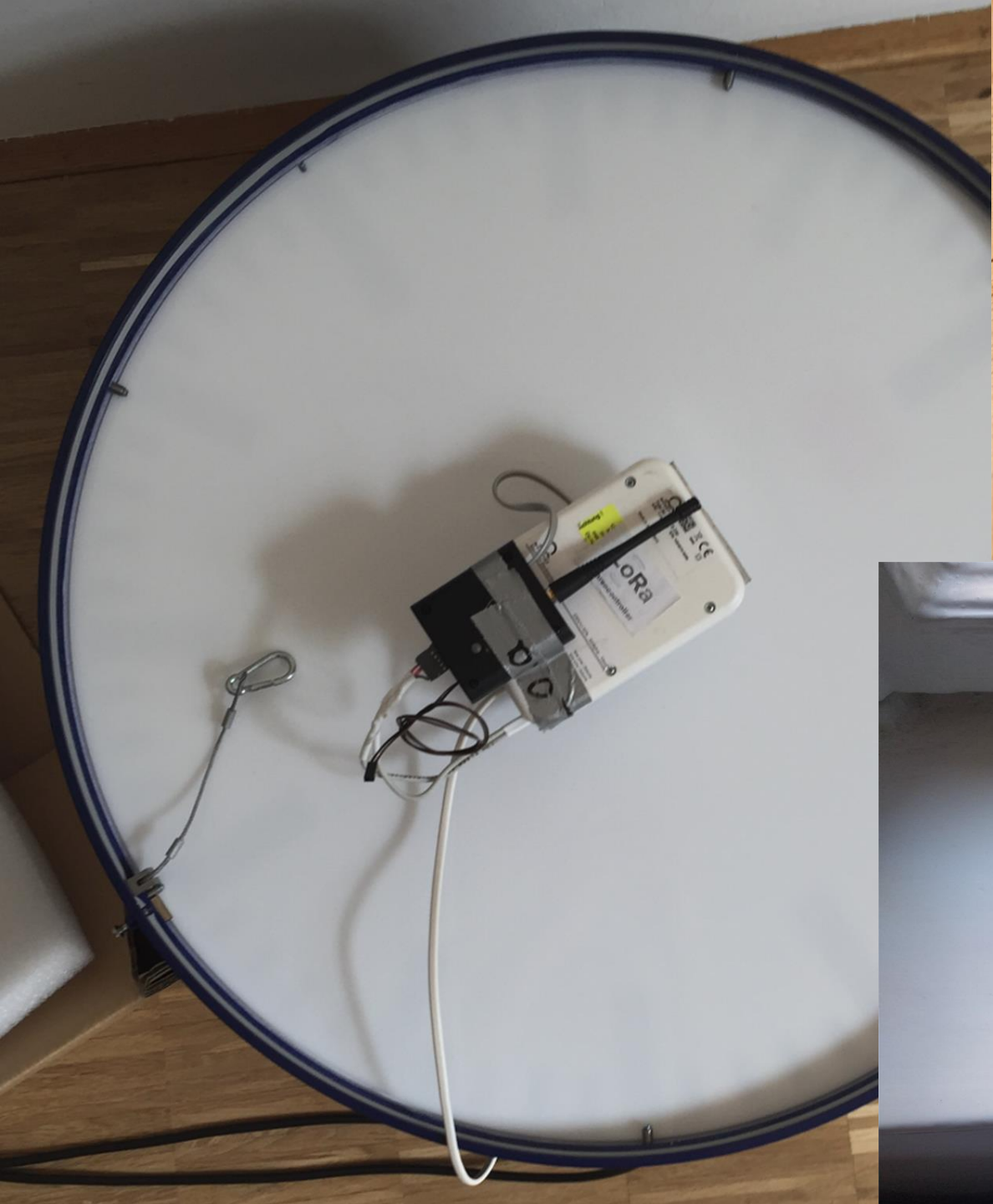
# DB Station&Service AG

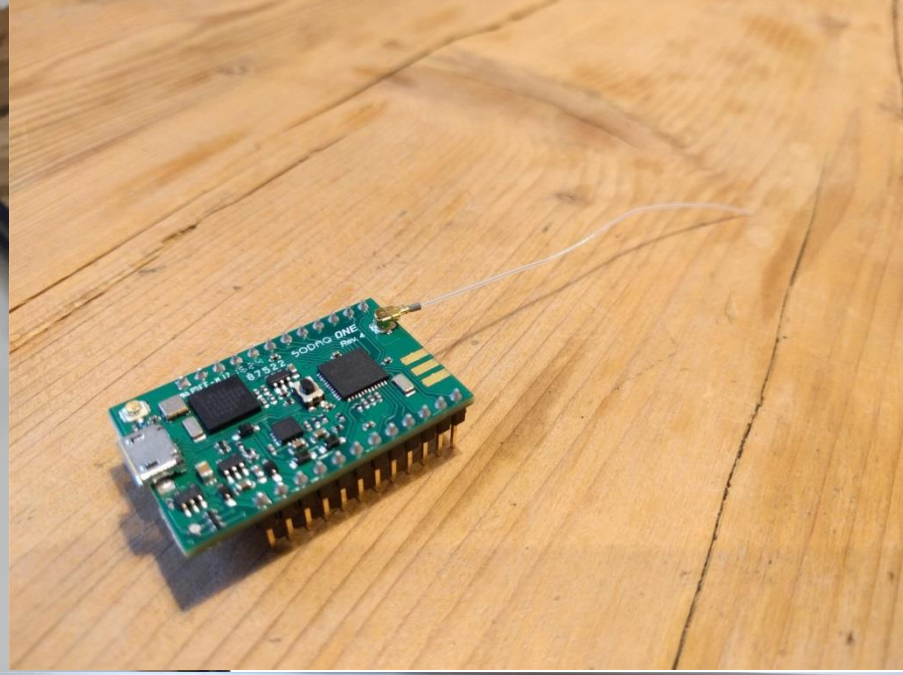
Wir bauen und betreiben Bahnhöfe!

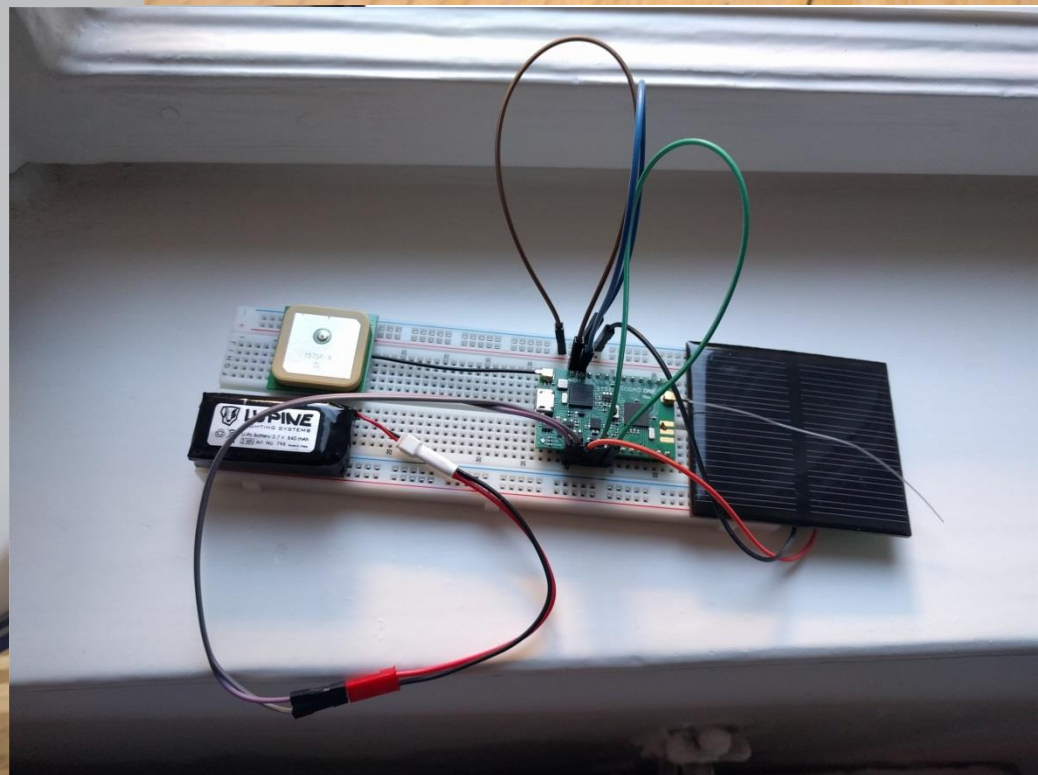
# LoRa-basierte Fernüberwachung der Bahnhofsuhr


LoRa™
Gateway
Cloud

# Bahnhofsuhr beim Hackathon


LoRa


sodaq ONE


LUPINE

DB
12 x 1,0 L

e·on

Your idea! Your business! :agile

# 6th :agile Hackathon

02 – 03 September, 2016

Congratulations!

Your pitch has been awarded first place in the category

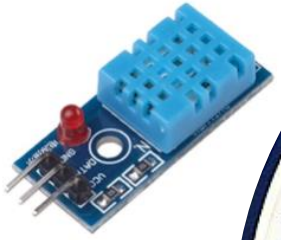
## Best Pitch

You have given the best performance pitching your business idea to the :agile team. We appreciate very much your work and efforts taken in preparing your pitch. We look forward to hearing from your successes in the future. Let's keep in touch.

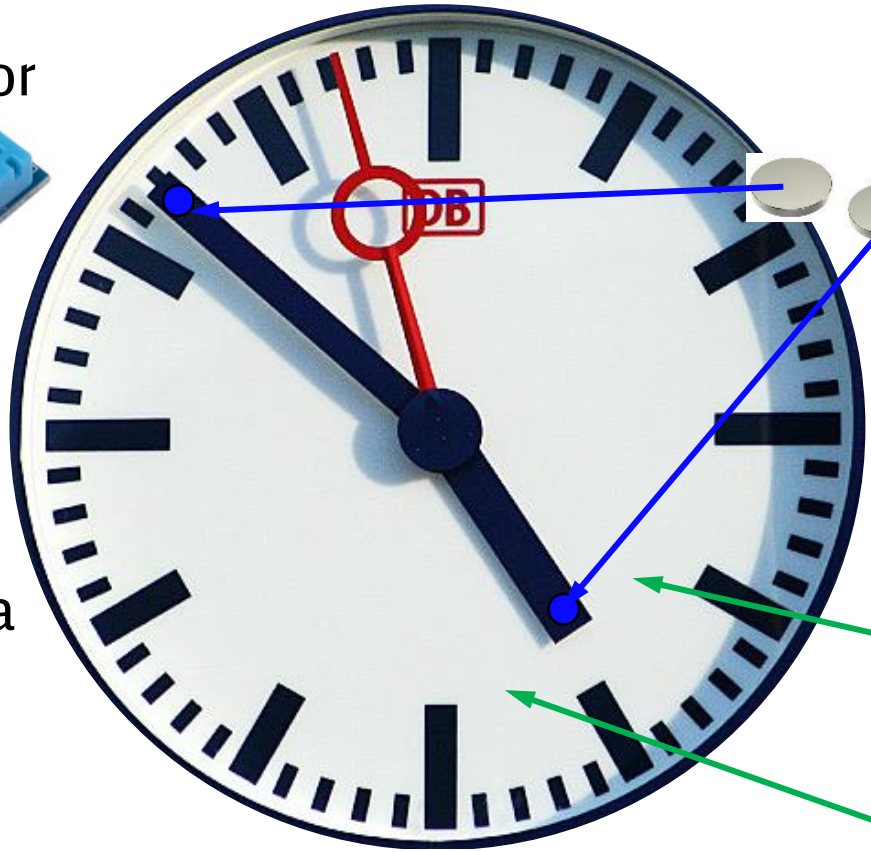
Yours sincerely,

The :agile team

Temperatur-/
Feuchtigkeitssensor



- Funkmodul mit LoRa
- Erkennung Stromausfall

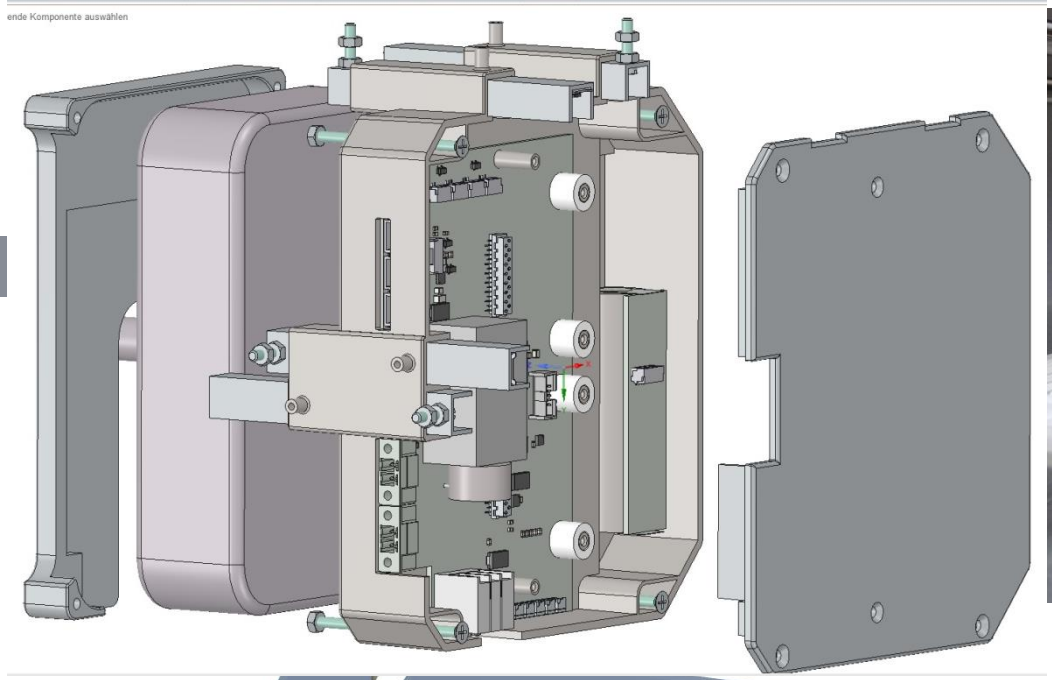


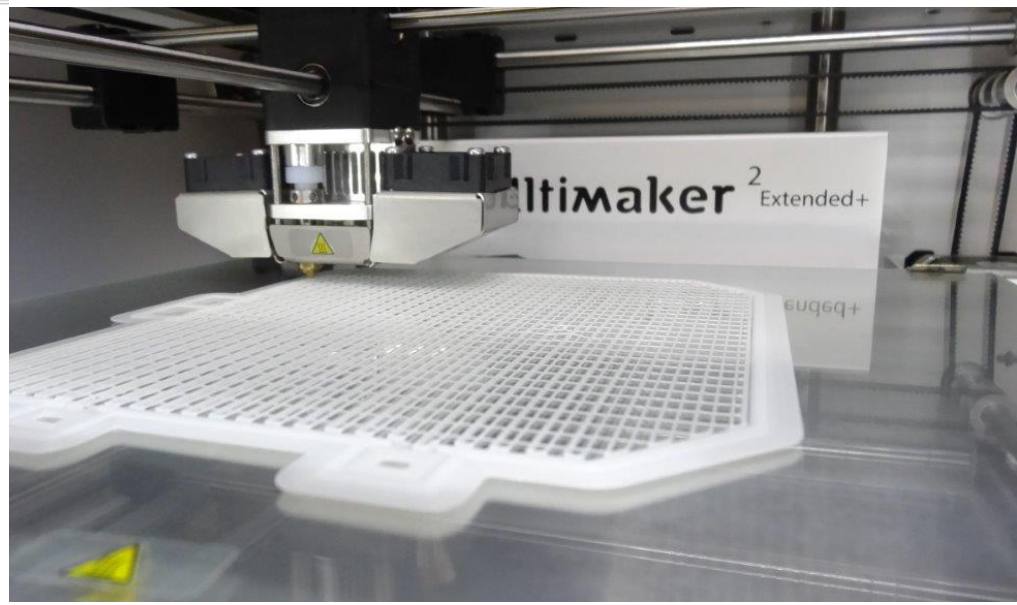
Hallsensoren
mit NdFeB-Magneten
(Funktion Std/Min-Zeiger mit „Magnetlichtschranke“)

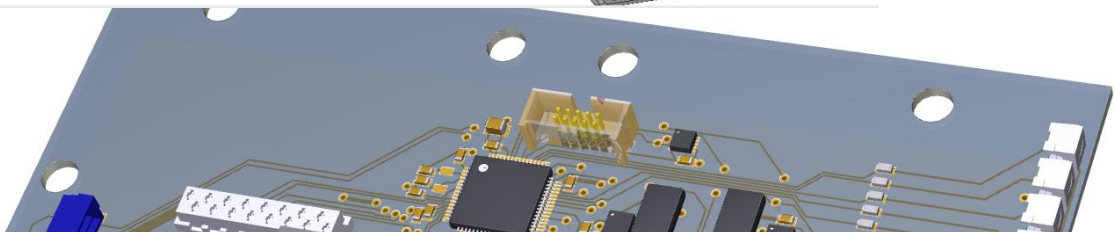
Lichtsensor

Glasbruchsensor

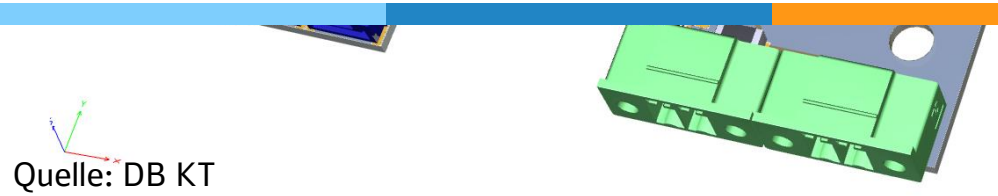
**Sensoren in LoRa-Uhr**



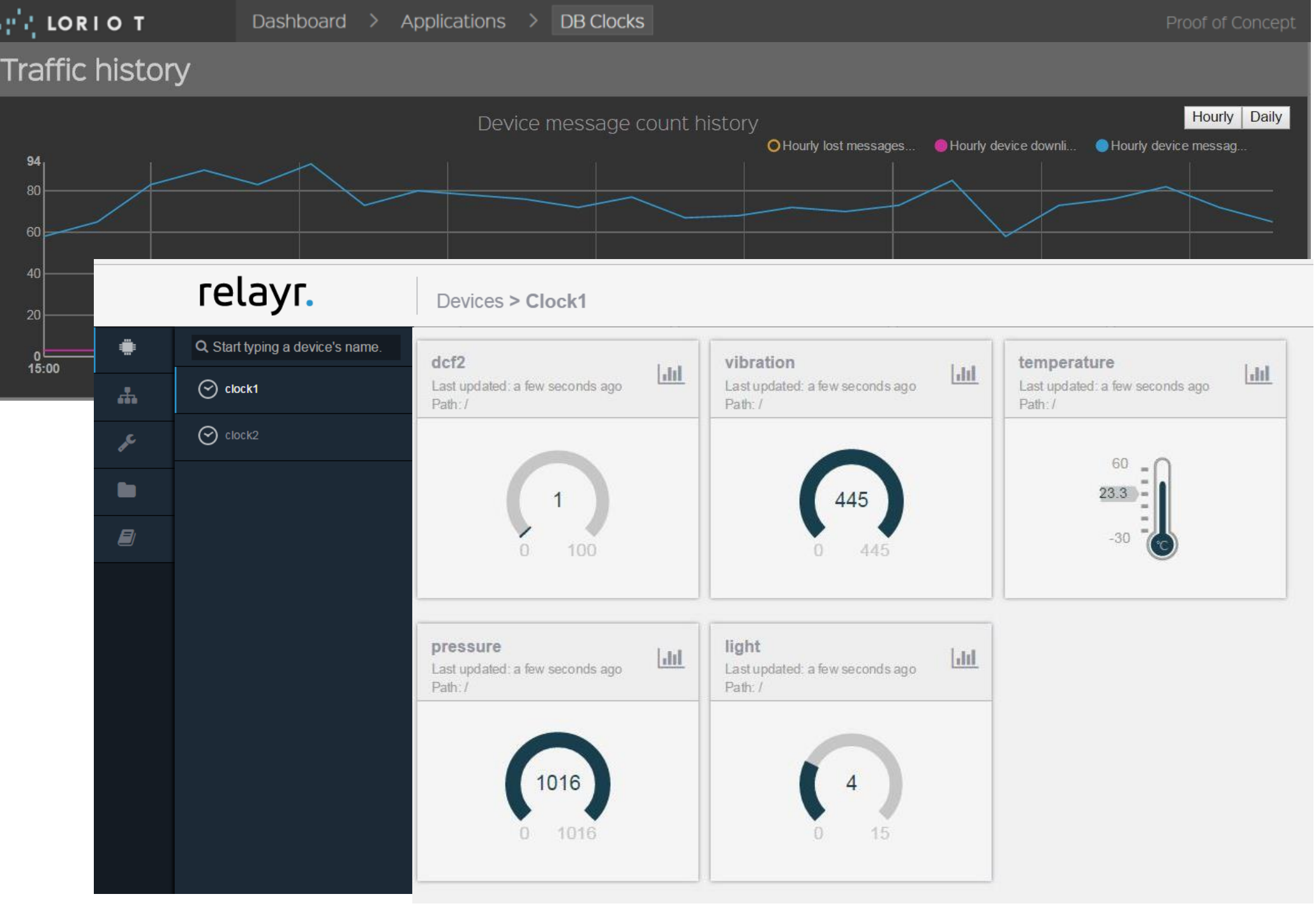



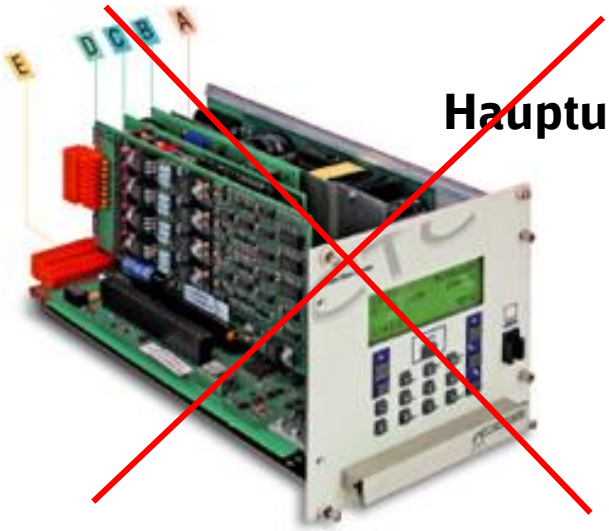
# 50 LoRa-Uhren an 3 Pilot-bahnhöfen



Quelle: DB KT

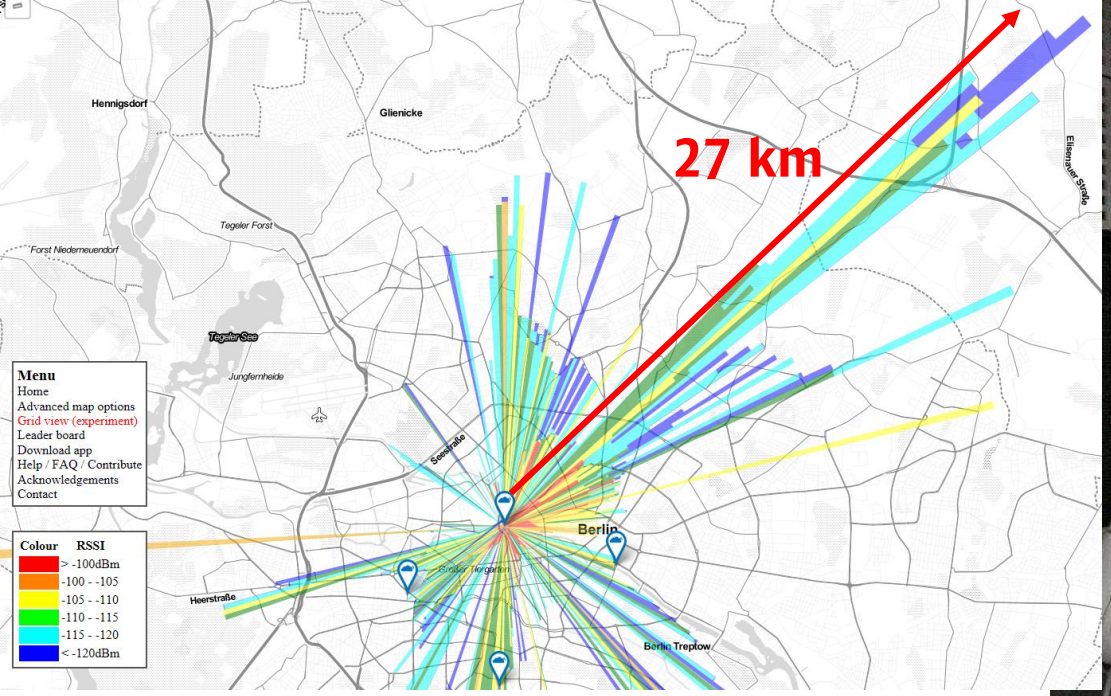
# Montage der LoRa-Bahnhofsuhren


LORIOT
Dashboard > Applications > DB Clocks
Proof of Concept
Traffic history
Device message count history
Hourly
Daily
Hourly lost messages...
Hourly device downli...
Hourly device messag...
94
80
60
40
20
0
15:00
relayr.
Devices > Clock1
Start typing a device's name.
clock1
clock2
dcf2
Last updated: a few seconds ago
Path: /
1
0
100
vibration
Last updated: a few seconds ago
Path: /
445
0
445
temperature
Last updated: a few seconds ago
Path: /
60
23.3
-30
°C
pressure
Last updated: a few seconds ago
Path: /
1016
0
1016
light
Last updated: a few seconds ago
Path: /
4
0
15



# Zeitsynchronisierung mit LoRaWAN

# Reichweitentests mit LoRaWAN

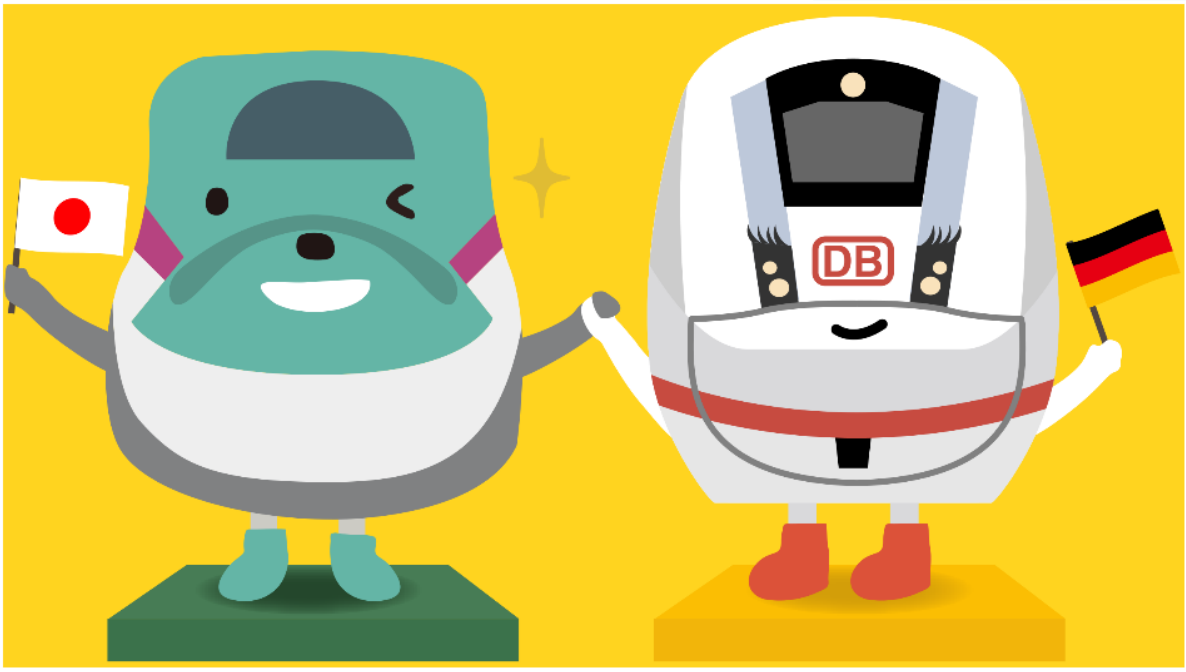


# Reichweitentests mit LoRaWAN

DB Open Data meets JR East: 12./13.05.2017

DB Open Data Hackathon

www.mindboxberlin.com/




# DB Hackathon 12./13.05.2017

# Vielen Dank!

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