



MAKEZURICH
VOL. II

Civic Tech and LoRaWAN Hackathon for a better city

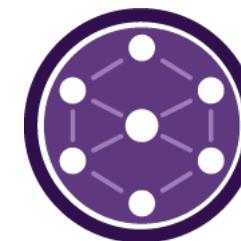


WHAT IS THIS?

We are bringing together the local maker community and the city administration to explore new ways of solving problems of our city with the help of open networks and civic tech.



Stadt Zürich



open network
infrastructure
association

Creative problem solving party
Marker days | Hackdays | Hackathon



MAKE ZURICH 2017





MAKE ZURICH 2017





MAKE ZURICH 2017

TAZ + COMMUNITY COLLABORATION: PIAZZA POP-UP



WHO ARE WE?



ALEXANDRA COLLM



CHRISTINA RIEDER



DIRK ZUGENMAIER



ROBERT FEY



LUKAS LIMACHER



BAXTER YAZBEK



THOMAS AMBERG



MURIEL BURI



AFSOON EBRAHIMI



URS MARTI



TILLO BOSSHART



OLEG LAVROVSKY



RETO WICK



SIMON MAURER



MARCO SIEBER



GONZALO CASAS



MICHEL RACIC



MARCUS CATHOMEN



BENNO SEILER

SPONSORS AND PARTNERS



COMMUNITY PARTNERS



KICK-OFF: JUNE 22ND 2018

- 17:00** Open Doors
- 18:00** Introduction to #MakeZurich
- 18:15** Presentation of seven challenges
- 19:00** Team registrations and Q&A sessions with challenge stakeholders, sponsors and partners
- 19:45-** Apéro!

SEVEN CHALLENGES FOR A SMARTER CITY



AKA, WHY ARE WE HERE TONIGHT?

1

REAL TIME OCCUPANCY RATE CHALLENGE

Discover ways to use technology to measure and understand occupancy rate of the public transport vehicles in real time.

Provided by VBZ



By Stefan Baguette CC BY-SA 3.0 from Wikimedia Commons

Peggy Neubert

Head of Service Quality, VBZ

Mail: peggy.neubert@vbz.ch

Phone: 044 411 4632

VBZ

Züri[®] Linie



PROBLEM STATEMENT

Today only 20% of our vehicles are equipped with counting sensors. The occupancy rate will be available days later. For future applications we need this information for all vehicles in real time. If the information of the occupancy rate is combined with the timetable, commuters may change their travel behavior and use less crowded vehicles.



Mittwoch, 20.06.2018			
IC 1 Richtung St. Gallen			11:32 → 12:28
Gl. 7	1. III	2. III	56 min
IR 16 Richtung Zürich HB			11:34 → 12:52
Gl. 9	1. III	2. III	1 h 18 min
IR 16 Richtung Zürich HB			11:34 → 12:54
Gl. 9	1. III	2. III	1 h 20 min

IDEAS & HINTS



Seats



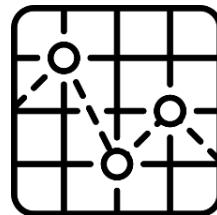
Different types of vehicles



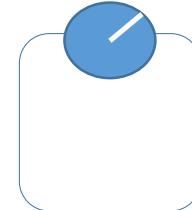
Vehicle Location



Standing places



Route Stop sequence



Weight



Parking place



Mobile devices

Contact:

Peggy Neubert, peggy.neubert@vzb.ch, 044 411 4632,

Available Tue – Thur (9 a.m. – 4 p.m.)

Visit Pitch 29.06.: Thomas Hollenstein + Daniel de Jong

2

CITY FOREST VISITORS

CHALLENGE

All year round, the forests of the city of Zurich receive thousands of visitors. How can we assess and quantify them easily and efficiently?

Provided by Grün Stadt Zürich



By Amelia Paige CC BY 3.0 from Wikimedia Commons

Regina Wollenmann / Marvin Bürgin

Forest management

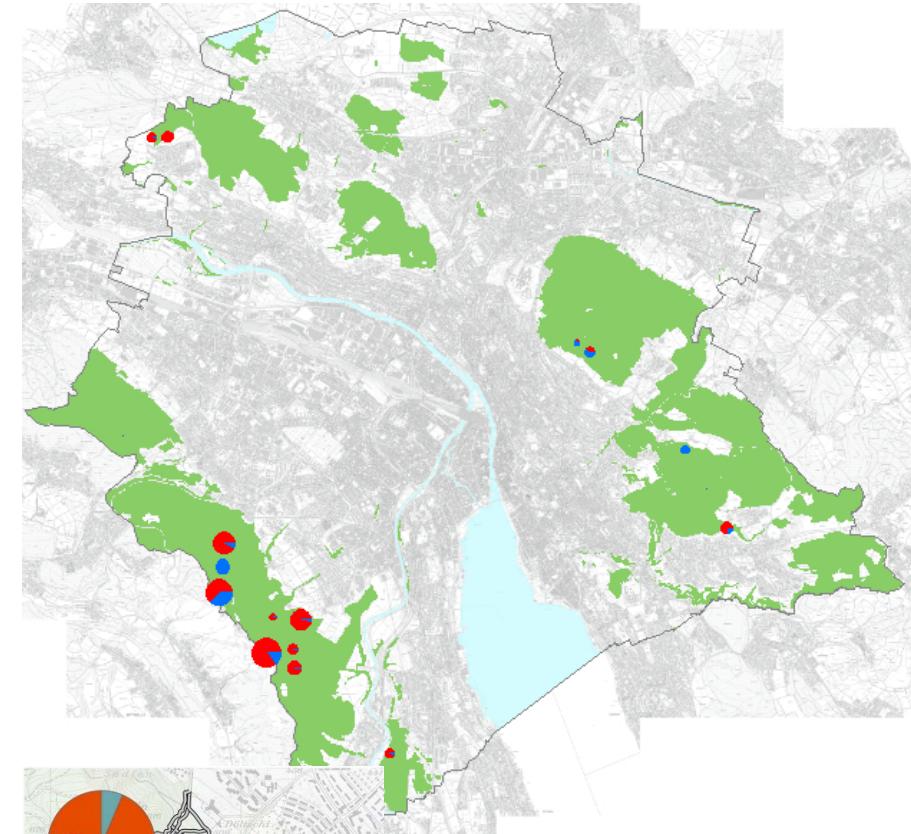
Grün Stadt Zürich

marvin.buergin@zuerich.ch

PROBLEM STATEMENT

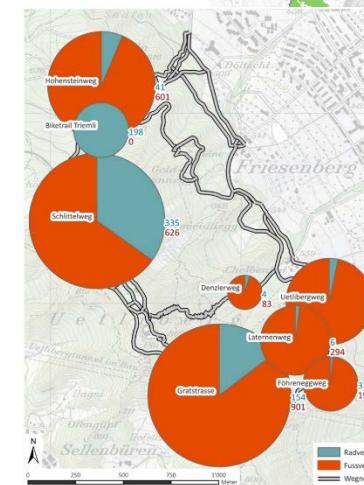
We know:

- Forest area: 2232 hectares
 - Around 642 forest entry points
 - 230 kilometer forest roads and paths
 - Diverse user groups
 - Pedestrians (incl. Geocachers, Nordic Walkers)
 - Cyclists
 - Mountainbikers
 - Runners
 - Forest Kindergarten
 - Dog Owners



We guess:

- More than 1'500'000 visits per year

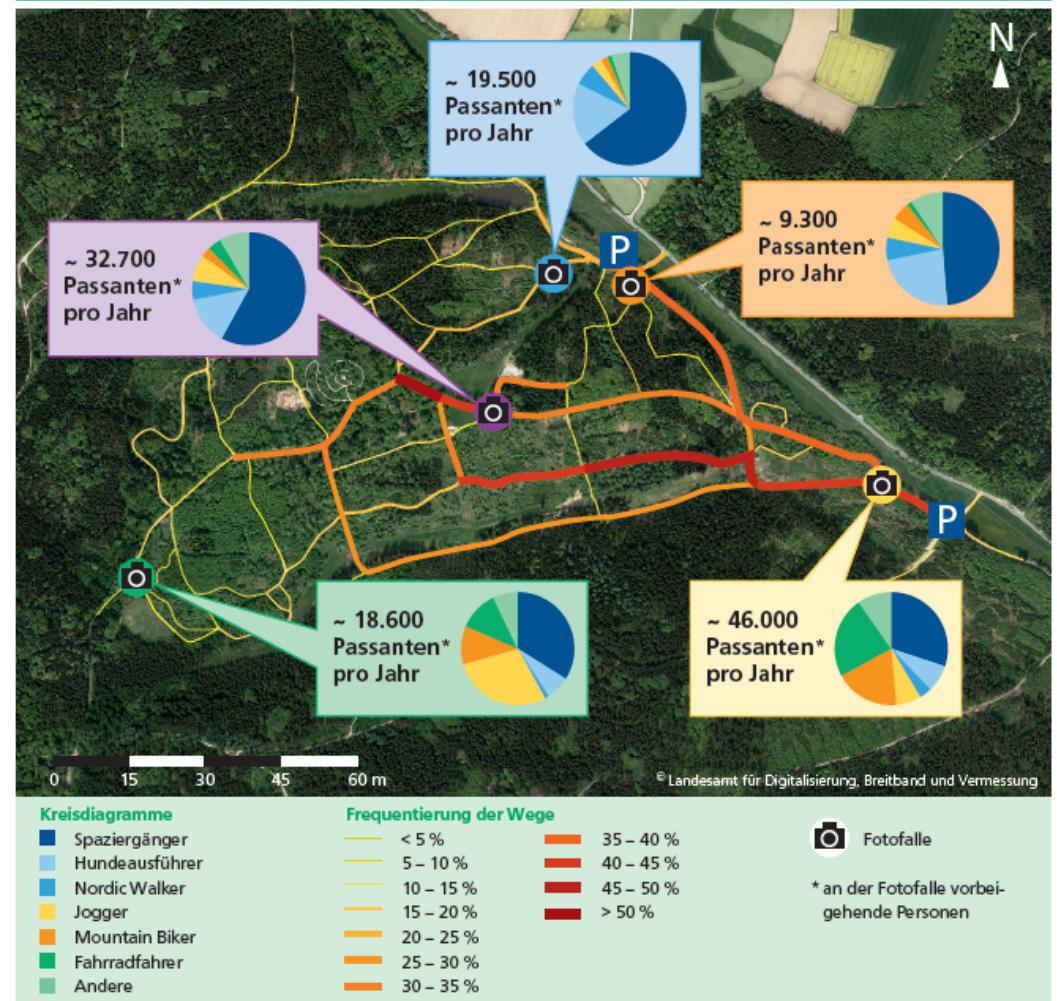


PROBLEM STATEMENT

We would like to know:

- How many visitors do we have?
- Where do they go?
- Where do they stay?
- What activities do they perform?

Besucherverhalten im Wald am Beispiel »Weltwald« bei Freising



Source: LWF Merkblatt 39 der bayerischen Landesanstalt für Wald und Forstwirtschaft

PROBLEM STATEMENT

Why is this of interest?

- Putting the right infrastructure in the right place
- Optimization of maintenance
- Early detection of trends
- Early detection of conflict areas
- Justification of resources



AVAILABLE RESOURCES

- Data of available sensors (Pedestrians/Cyclists)
- Heatmap of Zurich: <https://labs.strava.com/>
- GIS Data:
 - Forest roads and paths
 - Forest entries
 - Recreation infrastructure in the forest (lines and points)

Constraints:

- Sensors (robust/energy source/wireless data transfer)
- Number of forest entries
- Accuracy/costs
- Data laws e.g. Federal Act on Data Protection:
<https://www.admin.ch/opc/en/classified-compilation/19920153/index.html>

IDEAS & HINTS

- Video evaluation
- Strava-App Data <https://www.strava.com/features>
- Other Apps?
- Mobile phone tracking
- Evaluation of App/Mobile-Data in small forest part, control with sensors
=> Optimization of infrastructure
- Extrapolation of data? Creation of a data model?
- Classification of visitors via movement speed?
- Creation of Heat-Map/Length of stay

Contact: Preferably by email

marvin.buergin@zuerich.ch

Office hours 8-17, Tel.: 044 412 42 75

3

NO BIKE LEFT BEHIND

CHALLENGE

How can we track and recover abandoned bikes from the stationary sharing system of Züri Velo?

Provided by PubliBike



Thomas Hug

Location manager

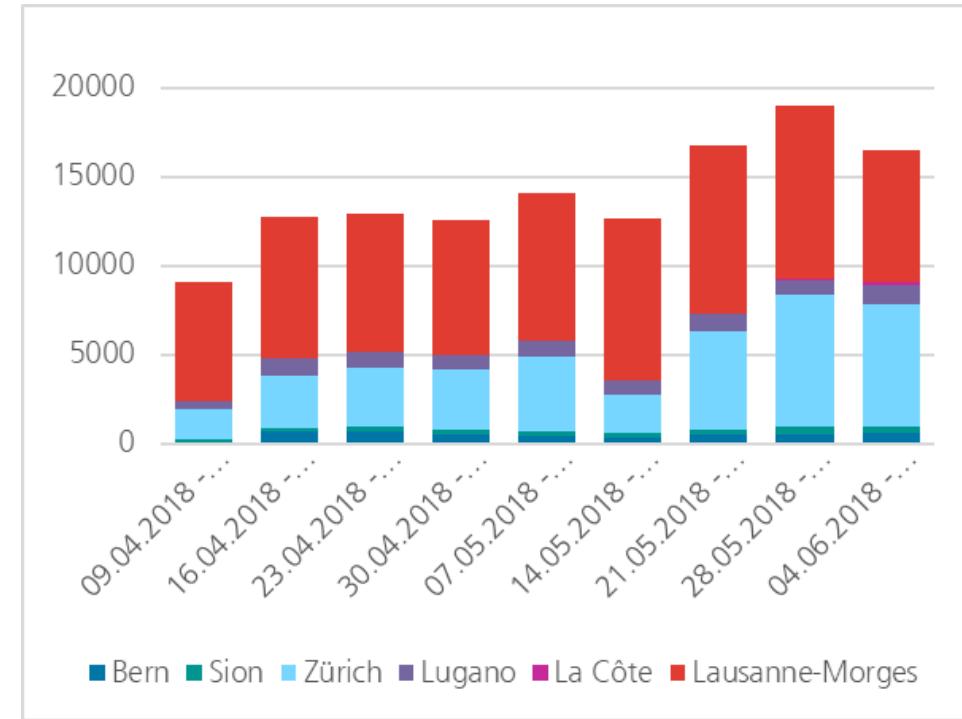
PubliBike

thomas.hug@publibike.ch



PROBLEM STATEMENT

Bikes get lost. But we like our bikes! We don't want them to get lost.
How can we get them back?

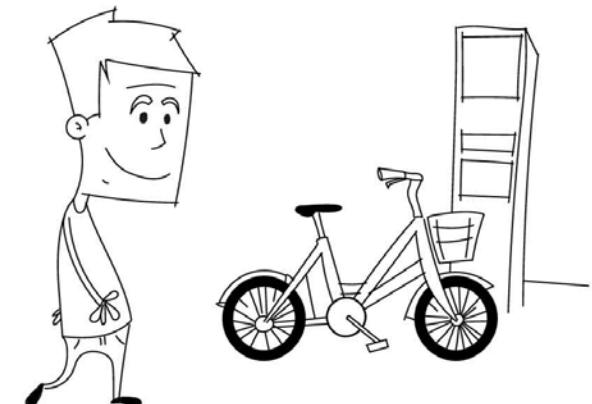


AVAILABLE RESOURCES

Our bike. You can open the lock using any RFID-card. Take care of it – it would like to go riding again after the event.

Constraints:

- Easily mounted on both bikes (ebike and mechanical)
- Barely any additional battery and operational needs
- Vandal-proof



IDEAS & HINTS

- Use available power (lights)
- Hide it well (behind the back light or in the middle section)
- Cost assumption is crucial for us ☺ a feasible solution will affect a few 1000 bikes not only in Zurich
- Don't use the ebike battery (obviously there is none on the mechanical bike)
- Making changes inside the lock gets very expensive – so better leave it ☺

E-Mail/Slack: thomas.hug@publibike.ch

Phone: +41 76 405 72 12 (I often have meetings where I can't take calls – so if you're looking for a quick reply, you're better off using email or slack).

I'm out of office after Thursday. I will try replying to your questions nevertheless.



CONQUERING THE LAST MILE

CHALLENGE

Optimizing last-mile logistics is fundamental topic for a smarter city. How can we measure and visualize deliveries within the boundaries of the city?

Provided by the office for urban development



Simon Keller

Project manager
Office for urban development
simon.keller@zuerich.ch

PROBLEM STATEMENT

Due to the increasing volume of home deliveries and a constantly growing population, Zurich is facing the challenge of preventing congestion in their residential districts.



Definition: Last mile delivery is a term used for transportation of goods from the nearest distribution hub to the final destination, such as a home or business.

IDEAS & HINTS (I)

- Optimization of last mile routes from the perspective of an urban planner. (e.g. to reduce traffic jams)



Office of Urban Development

Simon Keller

simon.keller@zuerich.ch

IDEAS & HINTS (II)

- Measuring specific indicators (e.g. temperature) of packages could help to determine quality of delivery of sensitive goods
- Measuring package dimensions in order to store them optimally in a delivery center, a micro hub or in the delivery system (e.g. bike trailer) itself
- Preventive maintenance for bike couriers



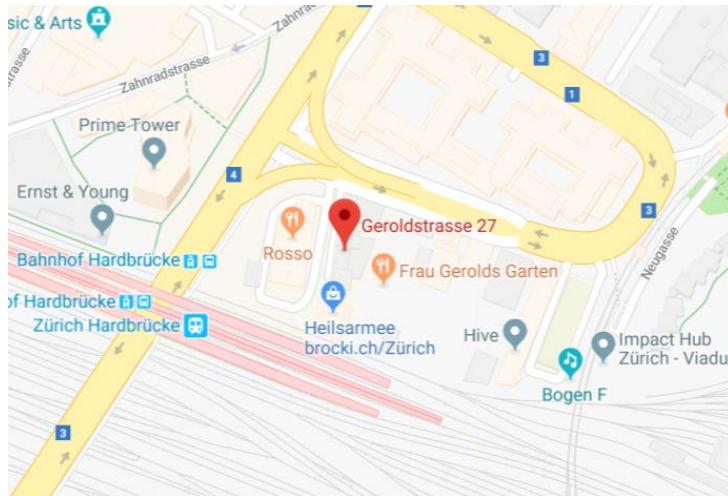
notime

Tobias Rüdlinger

tobias.ruedlinger@notime.eu

AVAILABLE RESOURCES

Workshop on Monday, 25th of June at Geroldstrasse 27 from 17:00 – 18:00:
“Inside notime – insights into a urban logistics service provider”



5

TEACHER'S CALLING

CHALLENGE

Creating a system for efficient silent alerts

Provided by Schul- und Sportdepartement



By Roland zh, CC BY-SA 3.0 from Wikimedia Commons

Roland Wehrli

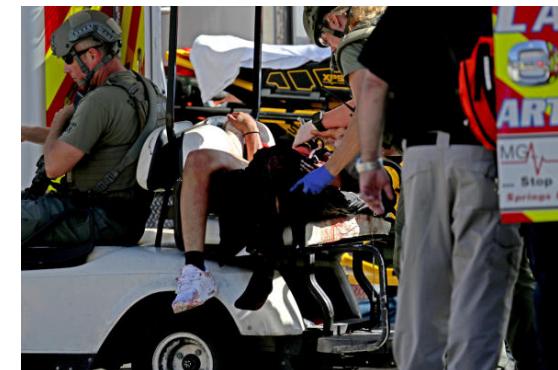
Leiter Zentrale Dienste

+41 79 423 25 70

roland.Wehrli@zuerich.ch

PROBLEM STATEMENT

There is a working procedure in case of an evacuation but not in a case of amok!



**How can a silent alarm be triggered?
How can a silent alarm be noticed (local)?
How can a silent alarm be noticed (externally)?
How can a silent alarm be trained?**

AVAILABLE RESOURCES

Schoolhouses with different rooms (there are over 100 schoolhouses only in Zurich)

Gong systems

Constraints:

Cellphones are not allowed in the classrooms for the students and in the primary school the kids don't have a cellphone

The teachers have the focus not on their cellphone (hopefully) and so is the cellphone solution a high risk

IDEAS & HINTS

When the **silent** alarm is activated, it should be visible on the classroom with a red light turning on every classroom when the alarm is activated (it must be visible for teacher and students)

When the **silent** alarm is activated is concurrently the alarming of the blue light organization

Roland Wehrli, +41 79 423 25 70, roland.wehrli@zuerich.ch

DISTRIBUTION GRID POWER FAILURE

CHALLENGE

How can we improve the detection of power failures in the low voltage network for a more efficient city?

Provided by ewz



By Flominator CC BY-SA 3.0 from Wikimedia Commons

Marcus Cathomen

Innovation Project Manager
Corporate and Business Development
marcus.cathomen@ewz.ch
+41 76 232 82 82



Ferni Donzé

Project Planning Manager
Distribution Grid
fernand.donze@ewz.ch
+41 79 412 30 65



PROBLEM STATEMENT

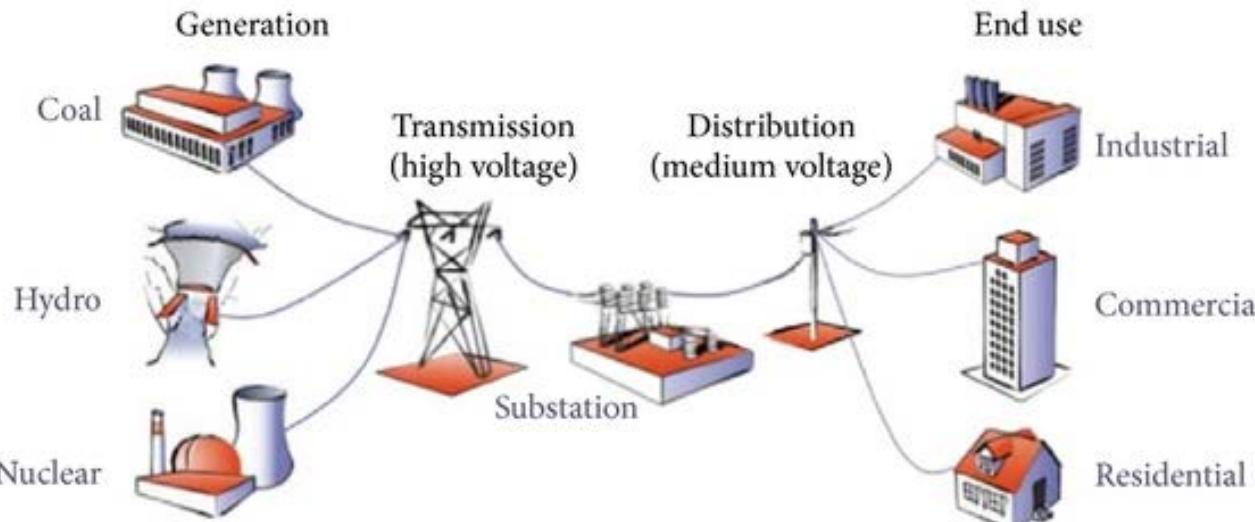
A power failure in the low voltage grid (400V and 230V) is not automatically detected.

Measures to remedy power failures can often only be initiated after an affected end customer has contacted ewz.

Today ewz customers can contact (+41 58 319 40 or 7x24stunden@ewz.ch) the ewz 7x24 helpdesk.



AVAILABLE RESOURCES



City of Zurich

- ~ 200'000 Households
- ~ 45'000 Companies
- ~ 55'000 Buildings
- ~ 2000 distribution cabins

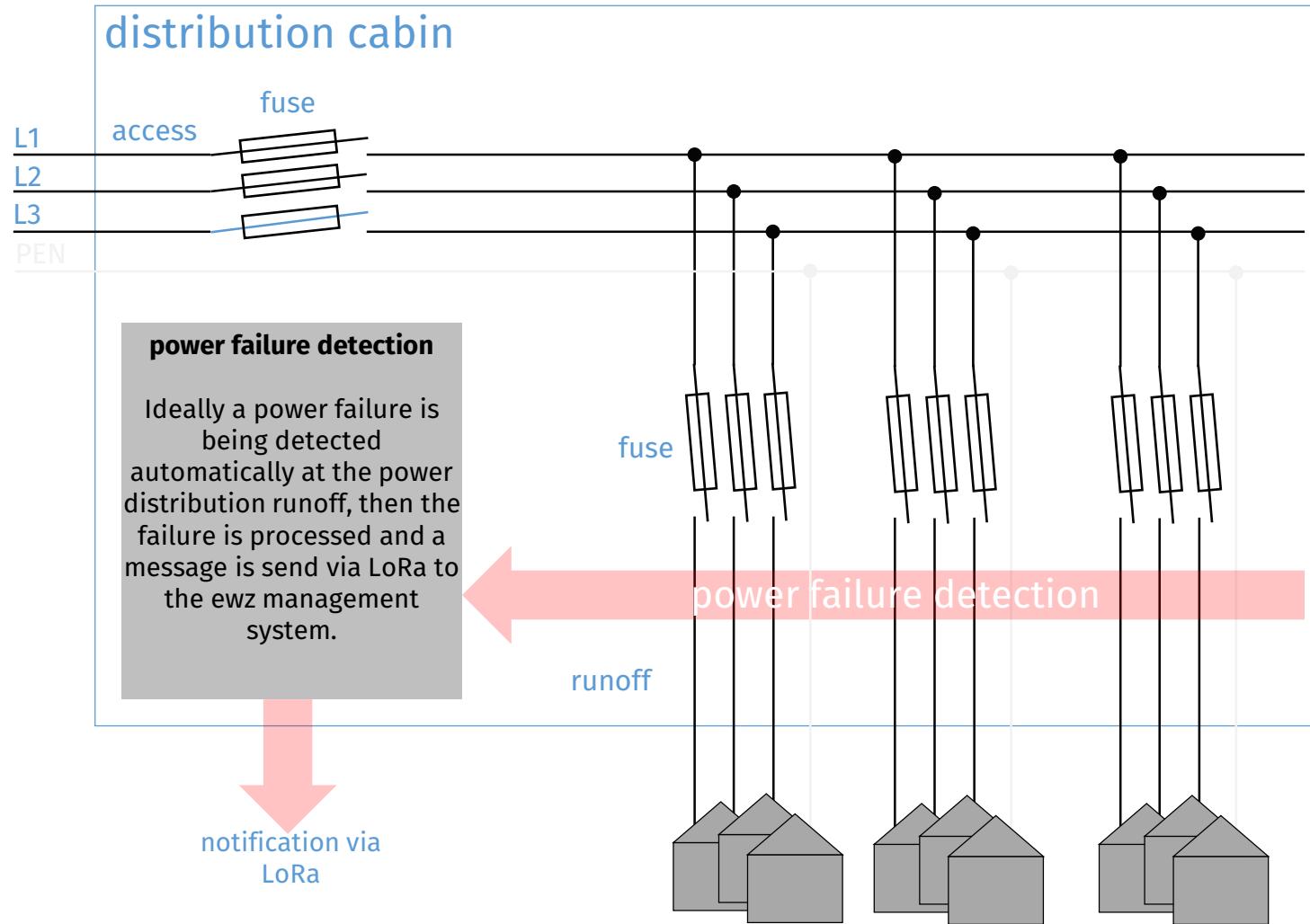
Distribution grid failures

- in Ø one failure in 1 to 2 weeks

Main reasons for power failures

- Damage caused by third parties like civil engineering work, excavators, etc.
- Damage caused by technical failure, weather influences, etc.

IDEAS & HINTS



Challenges

- Up to 40 runoffs in one cabin that might have to be monitored (prototype for 1 runoff might be fine)
- Fault message contains runoff ID and time stamp of the fault
- Fault message visible in the management system after 5 seconds
- Limited space:
max. 10 x 20 x 70 cm
- Limited costs:
max. CHF 100 per cabin

Legend:
L1, L2, L3: phases
PEN: Protective Earth and Neutral
(must not be interrupted)

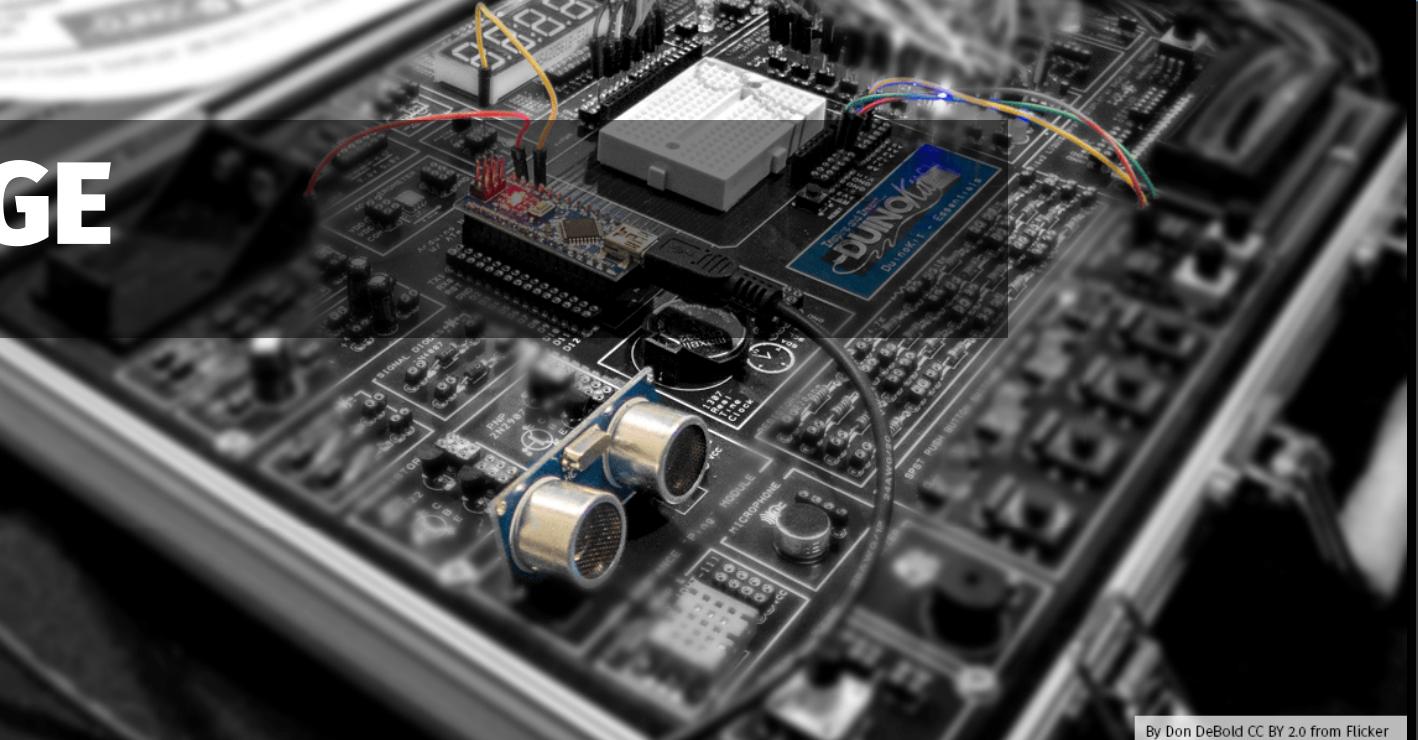
7

OPEN CHALLENGE

CHALLENGE

If none of the challenges fits you,
you are free to combine all available
elements and develop your own
challenge and ideas!

Provided by you!



By Don DeBold CC BY 2.0 from Flickr

Gonzalo Casas

The Things Network Zürich

gonzalocasas@gmail.com

IDEAS & HINTS

Check the open challenge ideas contributed by the community:

<https://github.com/make-zurich/open-challenge-ideas>

If you have new ideas, add them to the repository.





TIME TO TEAM UP!

- 1. Visit challenge rooms**
- 2. Decide for a challenge**
- 3. Find team mates**
- 4. Register your team**
- 5. Get the challenge kits**



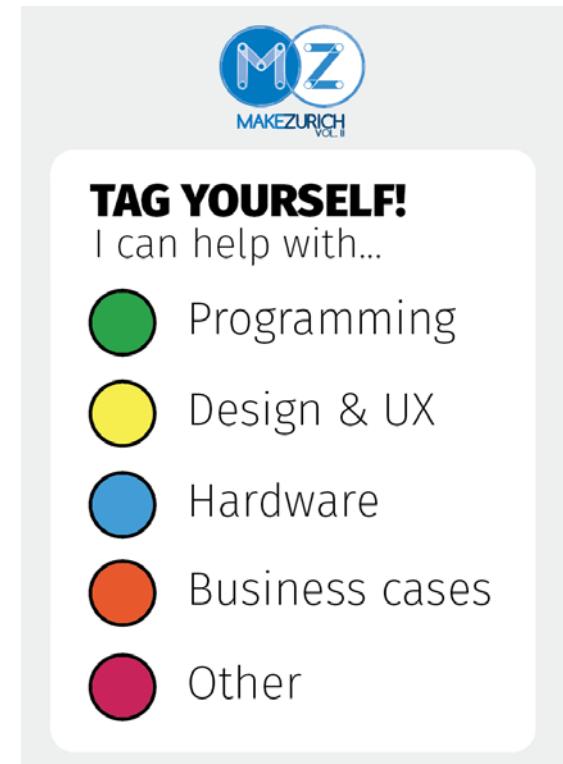
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TIME TO TEAM UP!

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The image shows a light gray rectangular card with rounded corners. In the top right corner, there is a small blue circular logo with 'MZ' and 'MAKEZURICH VOL. II'. Below the logo, the text 'TAG YOURSELF!' is written in bold black capital letters. Underneath this, the text 'I can help with...' is in a smaller, regular black font. To the left of each item in the list, there is a small colored circle: green for Programming, yellow for Design & UX, blue for Hardware, orange for Business cases, and pink for Other.

TAG YOURSELF!
I can help with...

- Programming
- Design & UX
- Hardware
- Business cases
- Other



TIME TO TEAM UP!

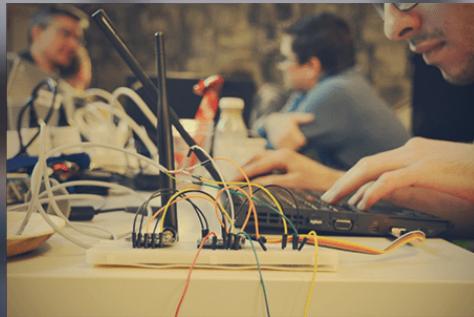
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TIME TO TEAM UP!

- 1. Visit challenge rooms**
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OPEN LAB WEEK

SATURDAY 23RD UNTIL THURSDAY 28TH

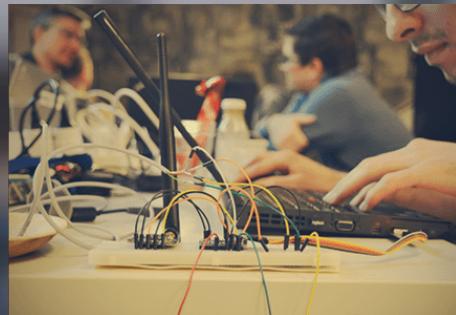
OPEN LAB WEEK @ MECHARTLAB

- Mentoring and assistance
- Available tools
- Workshops
- Good conversation!

Saturday 23rd until Thursday 28th:
16:00 – 22:00



Hohlstrasse 52, 8004 Zürich



HACK DAYS

FRIDAY 29TH AND SATURDAY 30TH

HACKDAYS @ KRAFTWERK

Friday 29th

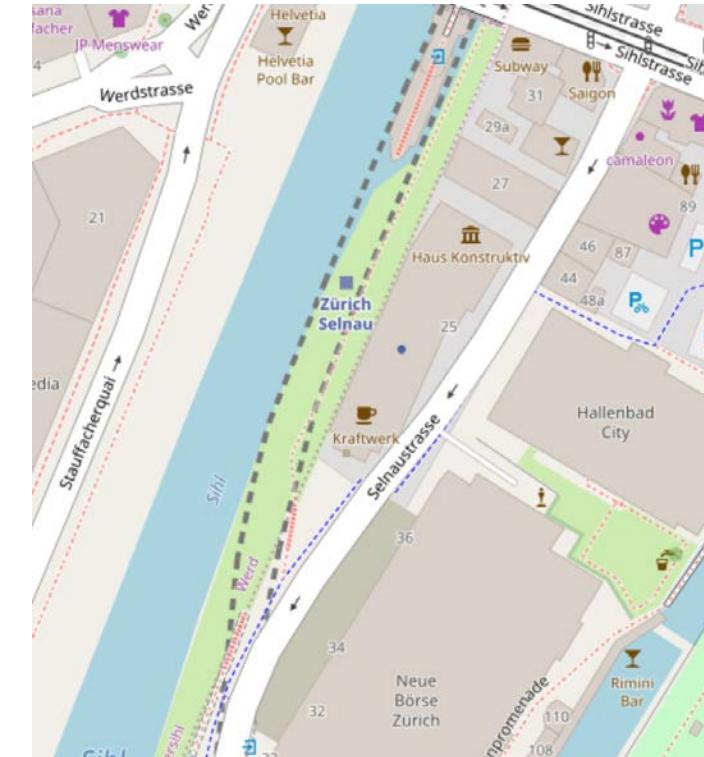
09:00 Open Doors

Saturday 30th

15:30 Final submission time

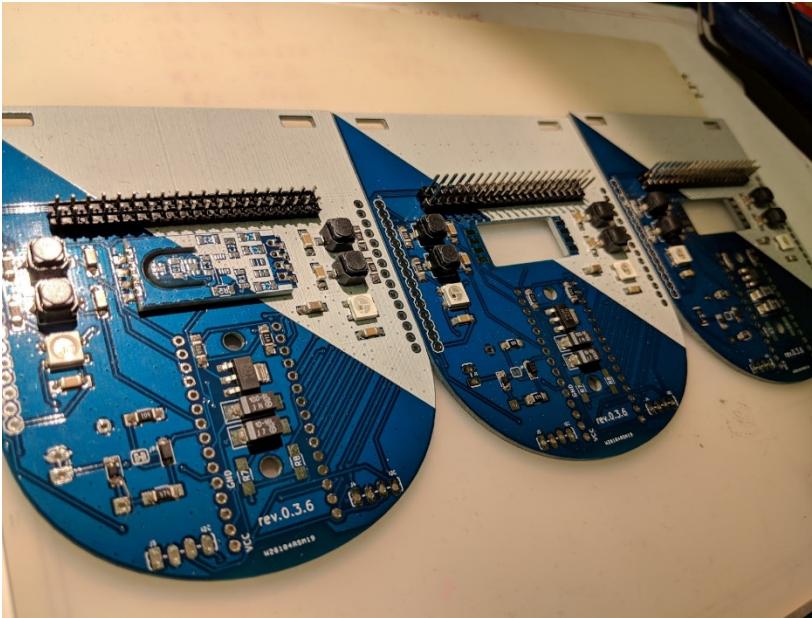
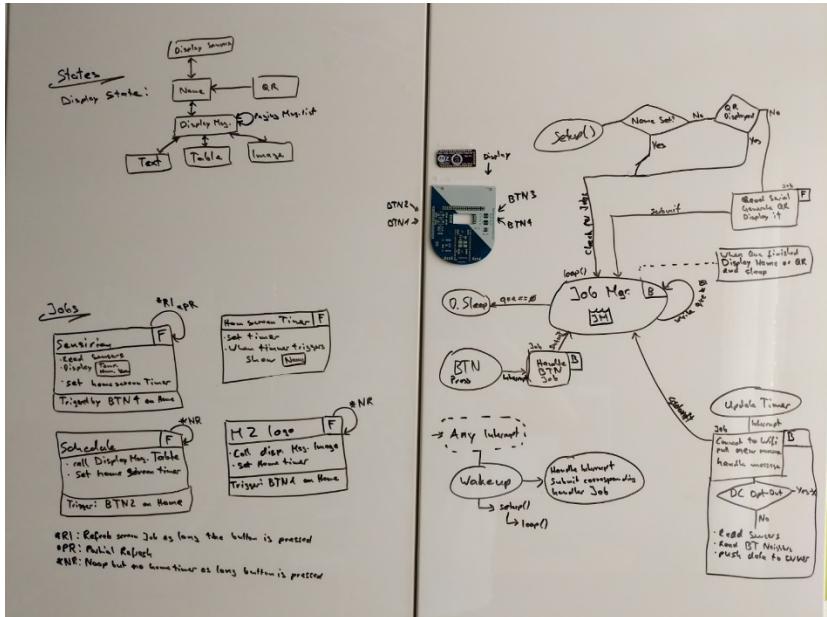
16:00 Presentations

18:00 Apéro



Selnaustrasse 25, 8001 Zürich

HACKDAYS @ KRAFTWERK





BE EXCELLENT TO EACH OTHER!

CODE OF CONDUCT

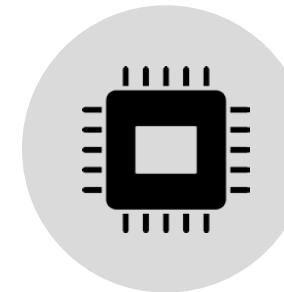




AND NOW WHAT?



now.makezurich.ch



#MakeZurich

THANKS!



SWITCH



THANKS!



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CHRISTINA RIEDER



DIRK ZUGENMAIER



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LUKAS LIMACHER



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