22nd March 2017

Overview: Make Zurich 2017

Timeline and planning

The idea of running an event like MakeZurich starts out of a series of informal meetings between members of **Open Data Zürich** and **The Things Network Zürich** community.

In March 2016, **ewz** joined the conversation and around end of May 2016, the brainstorming turns into a more concrete concept, and it is agreed to move forward with a hackthon-like event.
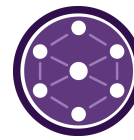
Concept

The concept of the event is to bridge the city government with the maker community by gathering problems and real needs of the public administration and exposing the community to them to foster fresh ideas and creative solutions.

Event format

The organizing team explored different formats for the event, ranging from a 6-months long open challenge, to a traditional 2-day hackathon. Taking into consideration the complexity and unfamiliarity of hardware development in general, and LoRaWAN networking in particular, it is necessary to make it longer than just two days, but it cannot be too longer either because it is also critical to keep the concentrated energy that a hackathon involves.

The final event format is a week-long to give enough time for participants to familiarize with the problems at hand and have access to hardware suppliers if there was the need, and it is split in three stages:

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Event kickoff: Friday 27th January
The event starts with a presentation of use cases (challenges) by stakeholders of the city administration on Friday afternoon. The hardware kits containing components required for the various challenges are made available to participants during this stage.
Presentations are followed by an apero where participants meet and build teams.
Team registration is open until the end of the evening.

Open Lab week

From Saturday to next Thursday evening (inclusive), an open lab week is to be available at a local fablab. Participants can walk-in, use the facilities and work on their projects, but there is no active tutoring/mentoring in-place.

Hackathon: Friday 3rd and Saturday 4th February
On Friday morning, a more intense session begins: following a more traditional hackathon schedule, participants get together to work on their projects for the weekend (starting on Friday 9:00, ending on Saturday 17:00), after which the event closes on Saturday afternoon with the presentation of all projects.

During this stage, the open lab is also available at disposal of participants.

Event identity

It is fundamental to define an identity, domain name, colors and fonts that the event image will have throughout every media channel.

For MakeZurich 2017, the following identity choices were made:
1. The makezurich.ch domain was reserved (also time-specific domains were reserved but not used, such as makezurich17.ch)
2. A Twitter account @makezurich
3. A Github organization https://github.com/make-zurich/
4. A logotype, which was also published as part of the press kit on the website: https://makezurich.ch/press-kit/
5. A dominant color: Züriblau, CMYK (Euroskala) 100C/44M/0Y/0K (matching that of Stadt Zürich itself)
6. Two font families: Comfortaa (for logotype), Fira Sans (for all other text)

Challenges

The task of gathering challenges is carried out mostly by the members of organizing team that belong to the city administration. It is extremely important to include an open challenge/category.

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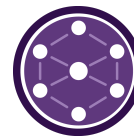
For MakeZurich 2017, a total of 12 potential challenges are identified, plus the open challenge.

In order to prioritize the challenges, the several members of the TTN community are approached and requested to provide ranked feedback about challenge preferences. These votes are fed into a Condorcet vote system (Schulze) to determine the priority/preference, and eventually to filter out the less interesting ones to focus on less challenges. Each challenge adds significant overhead to the entire process, so it is important to keep the number of challenges down to a manageable number.

The anonymized votes for MakeZurich 2017 can be publicly accessed on https://www.condorcet.vote/Vote/EDAFC0A08A/. Based on this priority, the first six challenges out of twelve are selected, then the open challenge is added for a grand total of seven challenges.

Hardware definition

Once challenges are set, the hardware required for them needs to be selected. We split this in two phases, the "base platform" (microcontroller and LoRaWAN module) is openly discussed with some members of the community. Involving the community means everyone gets to "make your own hackathon" in a way.
The other phase is selecting adequate sensors for each particular challenge. The complexity of this task is not to be underestimated. Each challenge presents a world of opportunities for sensing, and narrowing down to a few decently-priced sensors is a hard task.

For MakeZurich 2017, the selected microcontroller is Arduino Pro Mini 3v3 and the selected LoRaWAN module is the RN2483 serial modem. The list of sensors selected for all challenges is as follows:

Type	Product
Water temperature sensor	DS18B20 (3V-5.5V)
Soil sensors	Xiaomi Flower Monitor BLE
UV IR Visible Sensor	SI1145 (3.3V-5V)
Temp, humidity, pressure	BME280 (1.7-3.6V)
Temp, humidity	Sensirion SHT21 (2.1-3.6V)
BLE module	CC2540 (3.3-6V)
GPS Sensor	Ublox PAM-7Q (3.3-5V)
Speaker	Buzzer (3.3-5V)
Sound sensor	LM386 (3.3-5.3V)
Motion/PIR sensor	HC-SR501 (4.5-20V)
Ultrasonic distance sensor	HRLV-MaxSonar-EZ1 (2.5-5.5V)
Gas sensor kit	MQ-x (5V)

| Solid state relay	SSR -80DD (3-32V)
Wind sensor	Wind sensor (5V)
Luminosity	BH1750 (3-5V)
Air quality	SDS011 (5V)
Flame sensor	Flame sensor (3.3-9V)
IR Light barrier	IR Photoelectric Switch Barrier (3.3-5V)
Waterlevel sensor	Sensor provided by Keller

Platforms and tools

The organizing team requires a large toolbox of services and apps to collaborate:

1. Slack: real-time discussions between organizing team and in general during event.
   https://ttn-ch.slack.com/
2. Google Groups: distribution mailing list and redirected through team@makezurich.ch address.
   https://groups.google.com/forum/#!forum/team-makezurich
3. Google Drive: hosting files private to the organization team.
4. Github: to host and publish every bit of source code produced. https://github.com/make-zurich/
5. Github Pages: hosting service for the website itself.
   https://github.com/make-zurich/make-zurich.github.io
6. Trello: real-time collaboration and project planning.
   https://trello.com/b/K8setQ70/make-zurich-2017
7. Cloudflare: HTTPS certificates, caching and other CDN/Anti-DDoS services.
8. Dribdat: open source hackathon platform.
   https://now.makezurich.ch
9. Eventbrite: ticketing and check-in.
10. Typeform: post-event surveys (in progress) https://makezurich.typeform.com/to/E36eOE
11. Mailchimp: mailing list management.

Sponsors

We consider two main categories of supporters of the event: stakeholders and sponsors. **Stakeholders** represent one particular challenge and are requested to commit also by means of a financial contribution; and **sponsors** can contribute with either expertise, hardware products, or financial support.

In order to communicate with sponsors, we have a short one-page document highlighting the reasons and ways to contribute.
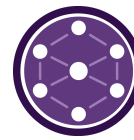
Task coordination

The organization team meets about once a month to coordinate upcoming tasks. As the date of the event approaches, frequency of this meeting increases accordingly. For real time updates and coordination, Trello was used to give all team members a good overview:
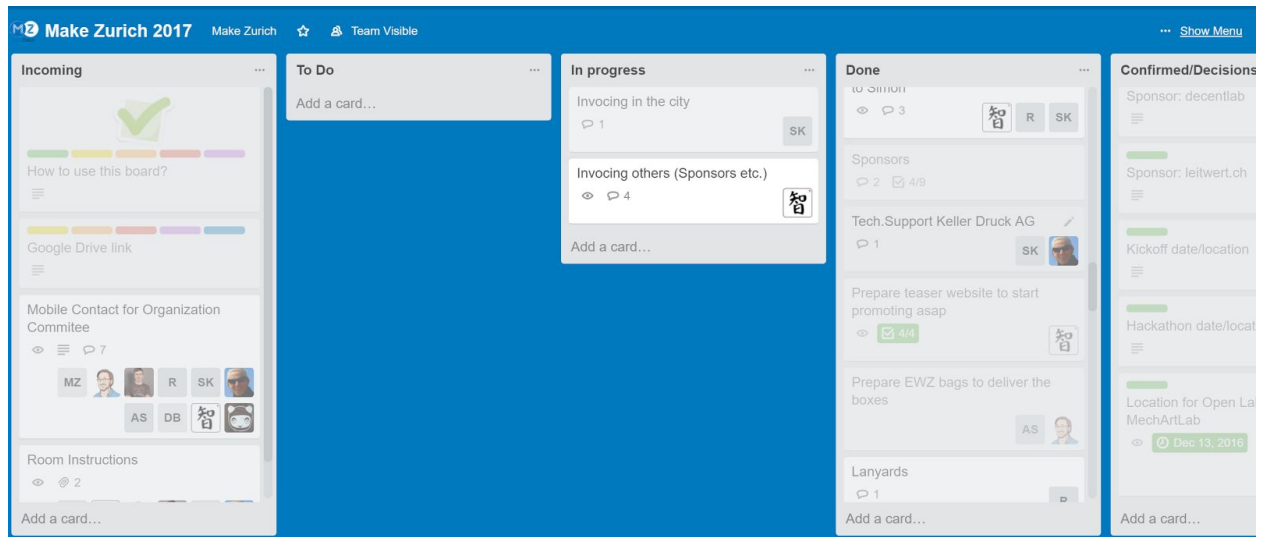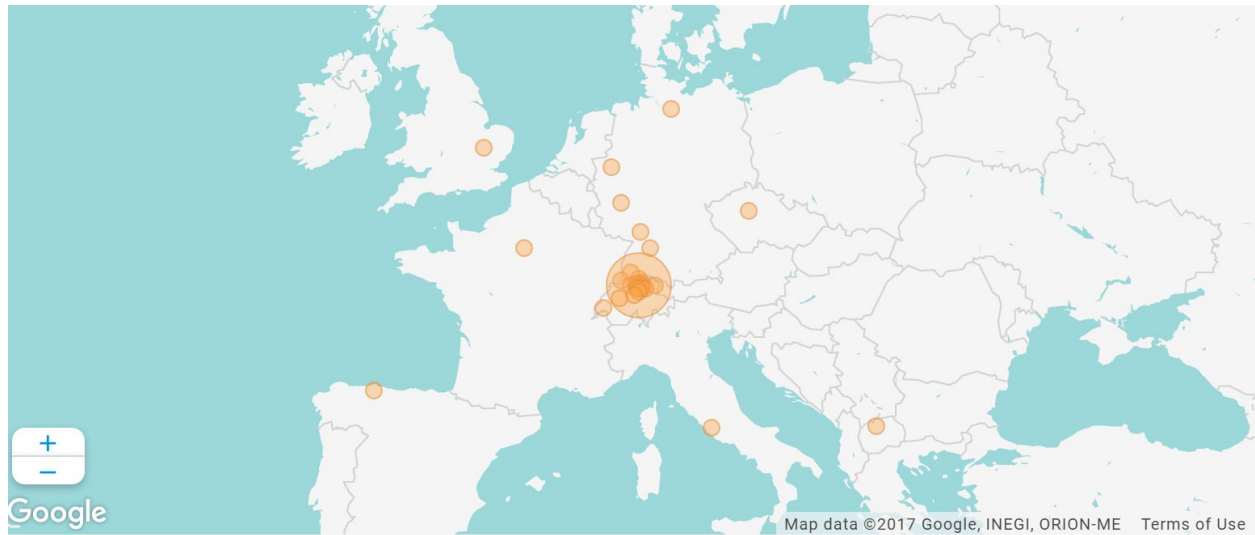

Statistics and Data

Since the launch of the website of the event and until its end, the event's website tracks usage with Google Analytics. The peak of session/visit metric is on the first day of the event.
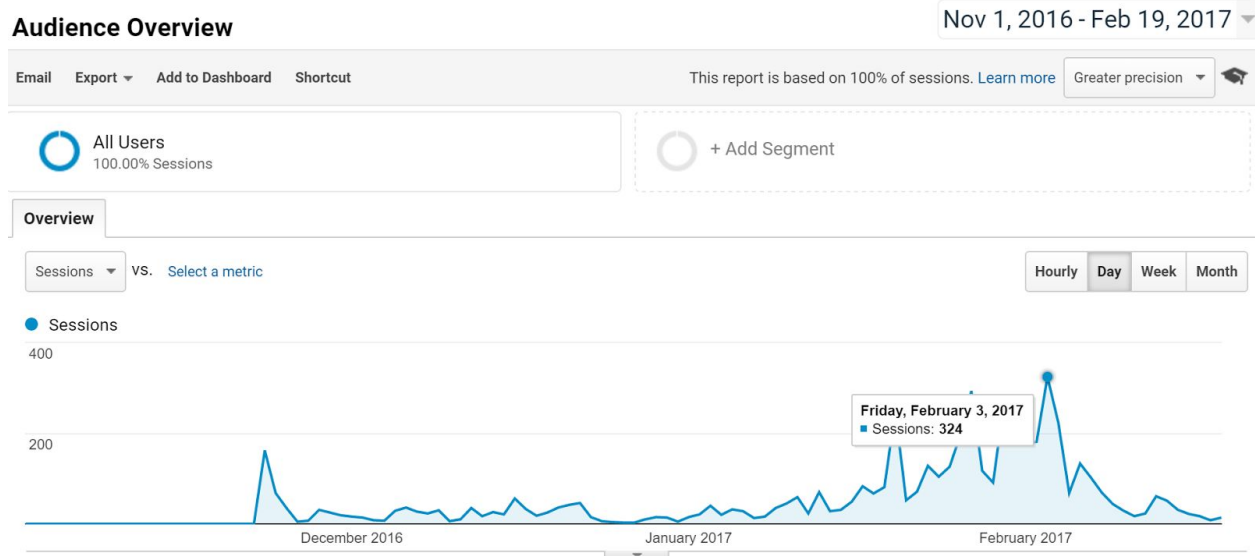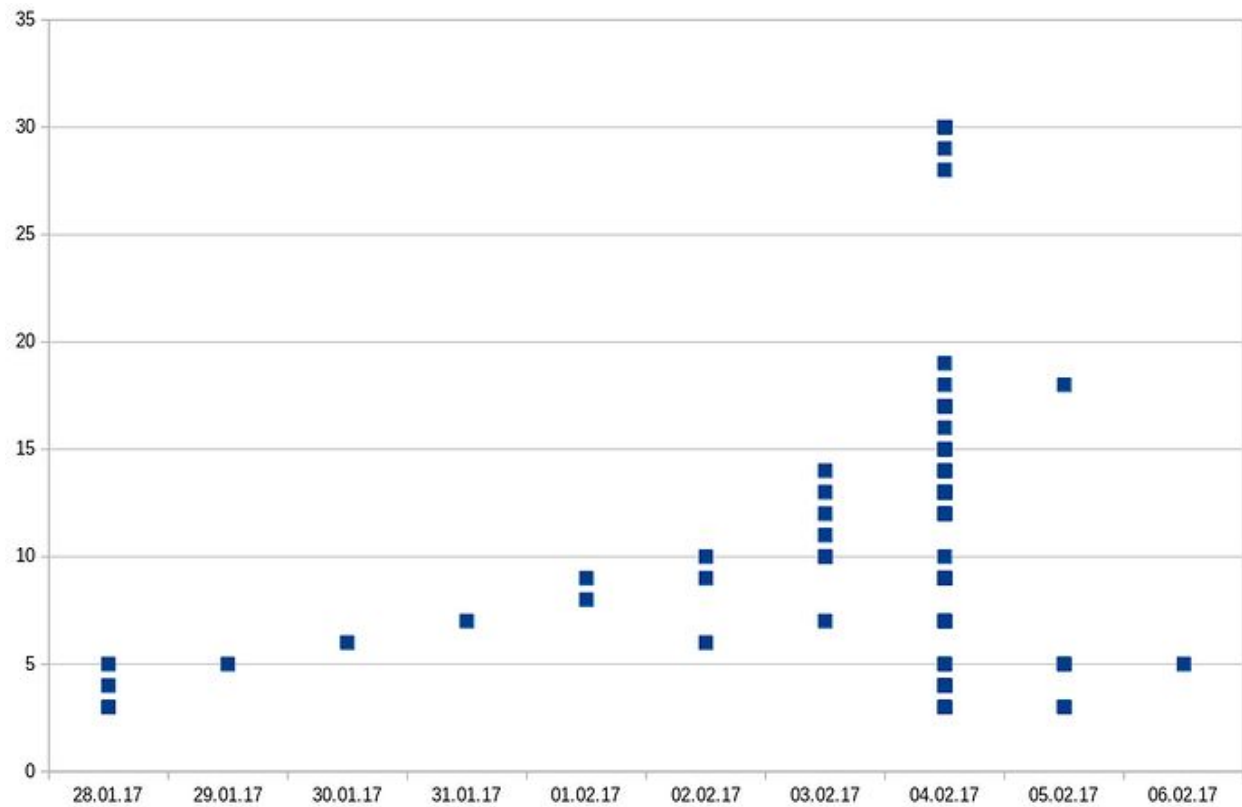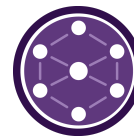
Eventbrite also provides some data about location of attendees:

Data from Dribdat shows when projects were being published and updated:

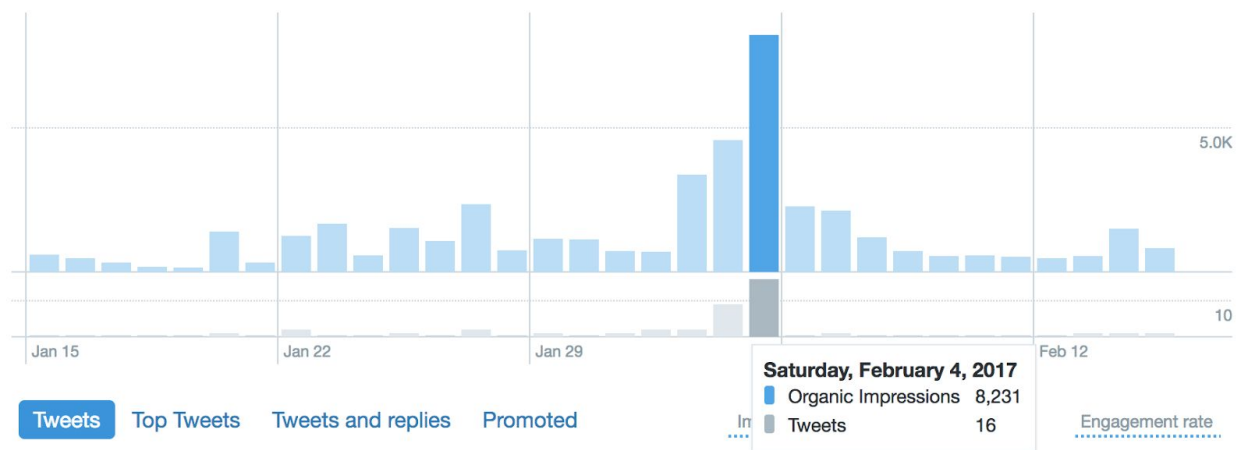Further graphs and insights have been posted to the School of Data Forum.

Social media impact

Twitter

The primary social media channel for the event is Twitter via the @makezurich account. The summary of the 32-day period centered around the event is as follows:
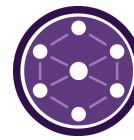

Your Tweets earned **43.8K impressions** over this **32 day** period

- **Total impressions: 43.8k**
- Average impressions per day: 1.4k
- Max impressions: February 4th, 8.231 organic impressions.
- Top tweet: 4.126 impressions, January 27th,
  https://twitter.com/makezurich/status/824906283295780868
- Top engagement: 7% on January 22nd.
- Side note: after this period, less frequent tweets with documental posts about the hackathon had extremely high engagement rates:
  - Micro:bit badge project: https://twitter.com/makezurich/status/835795832398049280
    Engagement: 12%
  - MoBiFloC project: https://twitter.com/makezurich/status/834423687310876672
    Engagement: 6.5%

Facebook

During the event, EWZ created a video of the hackathon and posted it on social media. Here are the results of the facebook post:

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Feedback survey

On the week after the event, a survey was sent to all participants asking for feedback about the various aspects of the hackathon. The response rate is ~21% (13 out of 60). Here is a summary of the responses:

- Ratings (in a scale of 1 to 5)
    - Location (ImpactHub): 3.92
    - Open lab (MechArtLab): 4.33
    - Support received: 4.31
    - Atmosphere of the event: 4.75
    - LoRaWAN network: 3.83
    - WiFi network: 3.92
- **Total average rating (all categories): 4.18**
- Did you manage to…
    - Connect to TTN: 92%

- ○ See data output: 92%
- ○ Wire up your device: 92%
- ○ Present data graphically: 69%
- ○ Analyse/trend data: 31%
- ● Age groups:
  - ○ Between 25 and 34: 82%
  - ○ Between 35 and 49: 18%
- ● Gender:
  - ○ Male: 100%

The reception of the event seems to be very positive. The gender imbalance is something that should be taken into consideration for future editions.

The full report is available online: https://makezurich.typeform.com/report/E36eOE/IIAO

Finances

Besides the sponsorship provided by the city administration, additional sponsorship is agreed with other companies in order to finance different parts of the project.

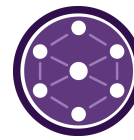The grand total of sponsoring is as follows:

Totals	
Sponsors	CHF8,000.00
Stadt Zürich	CHF3,000.00
Stadt Zürich (internal)	CHF16,886.70
Total	**CHF27,886.70**
Total costs	**CHF26,664.05**

These values take into account expenses paid internally by Stadt Zürich and EWZ such as Impact Hub rental and catering service (listed as "*Stadt Zürich (internal)*").

Summary

There was a total of 60 participants attending MakeZurich 2017, 17 teams presented their projects and published them on the Dribdat platform (https://now.makezurich.ch/).

The event was very well received by the community and the participants and it was featured in specialized, mainstream and social media channels during and after it.

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TagesAnzeiger: Mit einer Voodoo-Puppe den Zürcher Lärm messen

http://www.tagesanzeiger.ch/zuerich/stadt/hacken-und-loeten-fuer-eine-smartcity/story/24951450

NZZ: Hackathon für ein «smartes» Zürich

https://www.nzz.ch/zuerich/hackathon-make-zurich-freigeistiges-basteln-an-einer-schlaueren-stadt-ld.143801

LimmattalerZeitung: So smart soll Zürich werden

http://www.limmattalerzeitung.ch/limmattal/zuerich/so-smart-soll-zuerich-werden-130927130

Inside IT: Kreative Smart-City-Lösungen entwickelt

http://www.inside-it.ch/articles/46532

Netzwoche: Hackathon ohne Sieger

http://www.netzwoche.ch/news/2017-02-06/hackathon-ohne-sieger
http://www.cetoday.ch/news/2017-02-06/hackathon-ohne-sieger?utm_source=dlvr.it&utm_medium=twitter

Official press release of the City of Zürich

https://www.stadt-zuerich.ch/prd/de/index/ueber_das_departement/medien/medienmitteilungen/2017/170205a.html

The Things Network: Aufbau eines Open Internet der Dinge Netzwerk für alle in der Schweiz

http://thethingsnetwork.pr.co/142525-aufbau-eines-open-internet-der-dinge-netzwerk-fur-alle-in-der-schweiz

Der Anti-Musk, der die Dinge sprechen lässt

https://www.nzz.ch/zuerich/aktuell/internet-der-dinge-in-zuerich-der-anti-musk-der-die-dinge-sprechen-laesst-ld.149656