



FabSat: Prototyping Open Satellite Infrastructures Across the Global Fab Lab Network

waag  futurelab

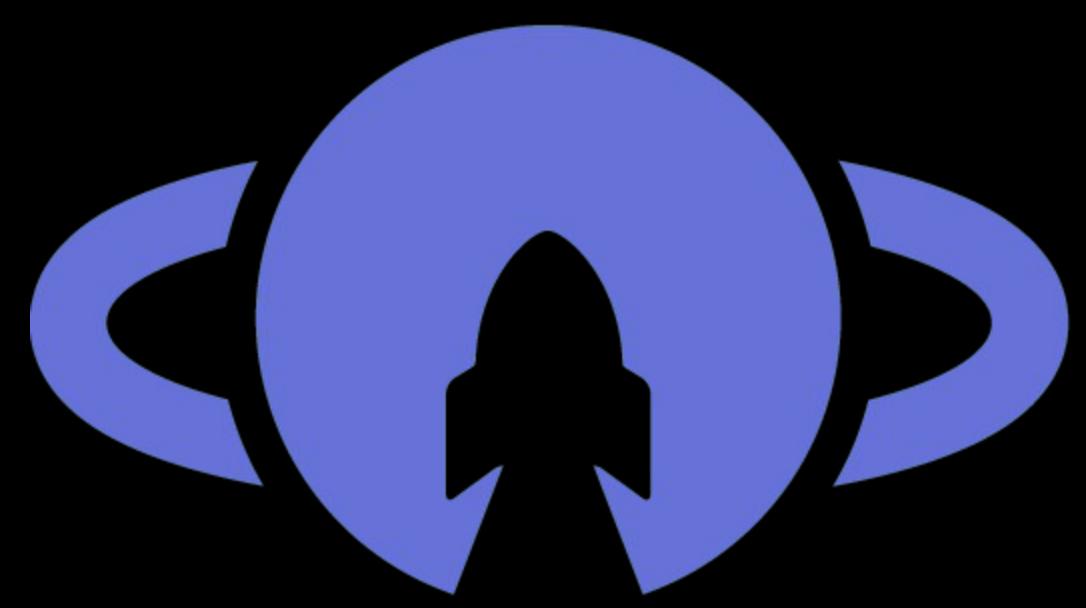


-'Technology is not neutral.'

-over 30 years, Waag has explored the social and cultural impact of technology.

-Waag reinforces critical reflection on technology, develops technological and social design skills, and encourages social innovation.

- make technology and society "open, fair and inclusive"



Libre Space Foundation

-is a non-profit foundation registered since 2015 in Greece from the creators of the SatNOGS project.

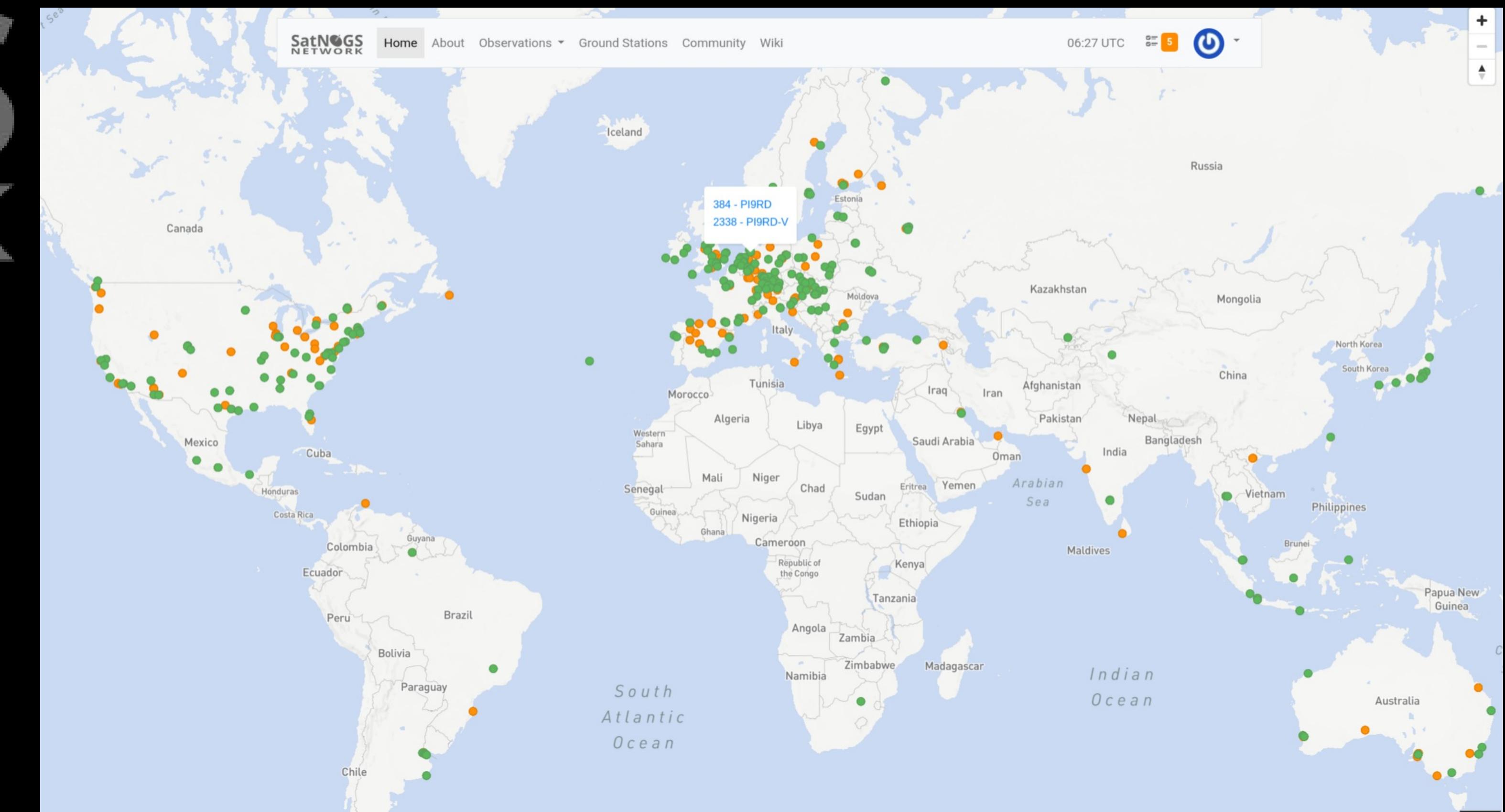
-mission is to promote, advance and develop libre (free and open source) technologies and knowledge for space.

-To do that, we design, develop and deliver space related projects ranging from Ground Station equipment to global monitoring Networks and satellite missions.



1. All people shall have the right to explore and use outer space for the benefit and in the interests of all humanity.
2. Exploration and use of outer space shall be carried out collaboratively and cooperatively.
3. Outer space shall be used exclusively for peaceful purposes.
4. Profit shall not be the driving force for space exploration.
5. All people shall have access to outer space, space technologies, and space data.

SatNOGS NETWORK



- global network of satellite ground stations, designed as an open source participatory project.

SatNOGS NETWORK

39 - CGBSAT-VHF

🕒 Timeframes are in UTC

Information Future Passes Status Log

Owner Cees Bassa

QTH Locator JO32eu

Coordinates(lat, lon) 52.834°, 6.379°

Altitude 10 m

Min Horizon 20°

Antennas Turnstile (VHF)

Success Rate  55202

Observations 55202

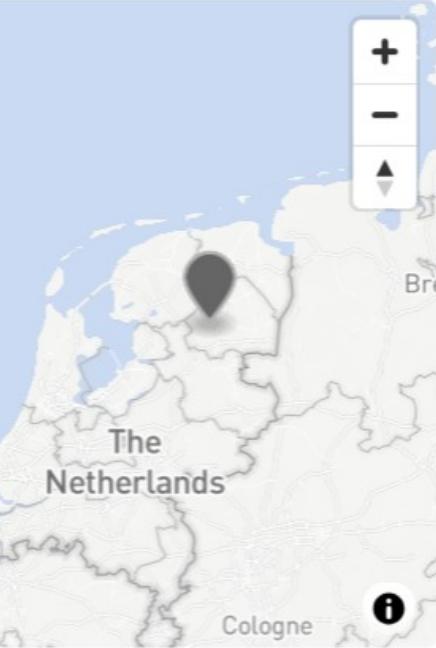
Creation Date 7 years, 10 months ago

Client version 2.1.1

Last seen 0 minutes ago

Online

Uptime 2 weeks, 2 days



METEOR M2-4

[SatNOGS DB](#)



METEOR M2-4
METEOR 2 2-4, METEOR-M N2-4

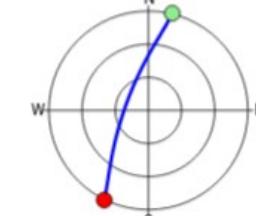
NORAD ID 59051
Satellite ID VSVI-4798-5613-4587-2414
Success Rate 57.5%
Observations 21285, 12239, 6643, 2383, 20

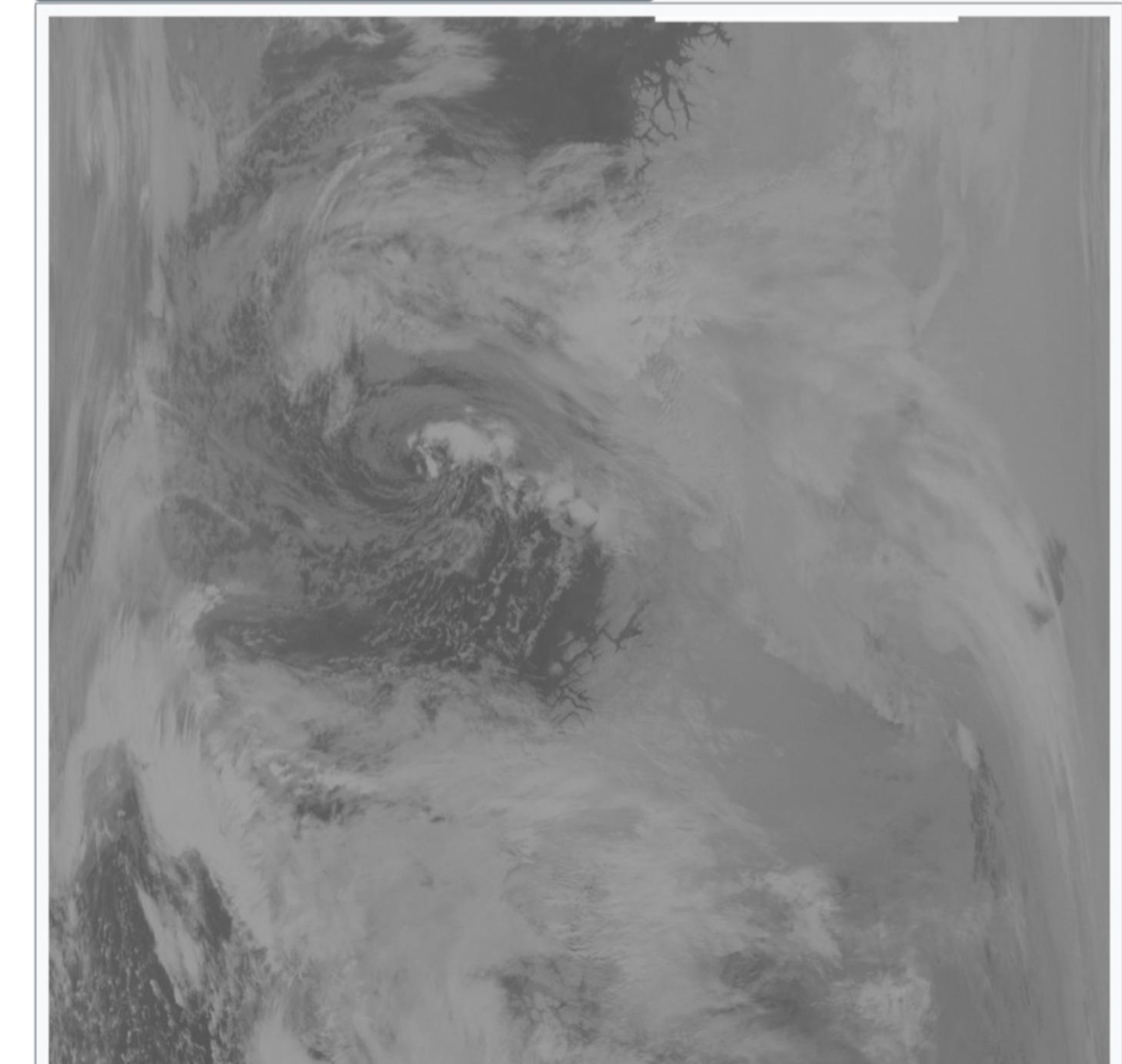
LRPT S-E RHCP D 80 kbps Total Observations: 185
LRPT S-E RHCP D 80 kbps Total Observations: 12182

SatNOGS NETWORK Home About Observations Ground Stations Community Wiki 06:32 UTC 5 

Observation #13204667

🕒 Timeframes are in UTC

Satellite 59051 - METEOR M2-4
Station 39 - CGBSAT-VHF
Station Owner Cees Bassa
Observer Cees Bassa
Status Good
Transmitter LRPT IQ recording usage
Transmitter Status Active
Transmitter Frequency 137.9000 MHz
Transmitter Mode FSK 40000
Timeframe 2026-01-15 03:17:39, 2026-01-15 03:33:19
Rise 14.0°
Max 69.0°
Set 206.0°
Client Version 2.1.1
Polar Plot 
TLE fetched from Space-Track.org
TLE fetch time 2026-01-14 19:15:56
Observation start since TLE fetch time 8 hours, 1 minute
TLE epoch time 2026-01-14 15:01:09
Observation start since TLE epoch 12 hours, 16 minutes
[↓ Audio](#) [↓ Waterfall](#)



- A machine-readable crowdsourced satellite information database



☰ SatNOGS Network

» Developer Guide [Edit on GitLab](#)

Developer Guide

Thank you for your interest in developing SatNOGS! There are always bugs to file; bugs to fix in code; improvements to be made to the documentation; and more.

The below instructions are for software developers who want to work on [satnogs-network code](#).

Workflow

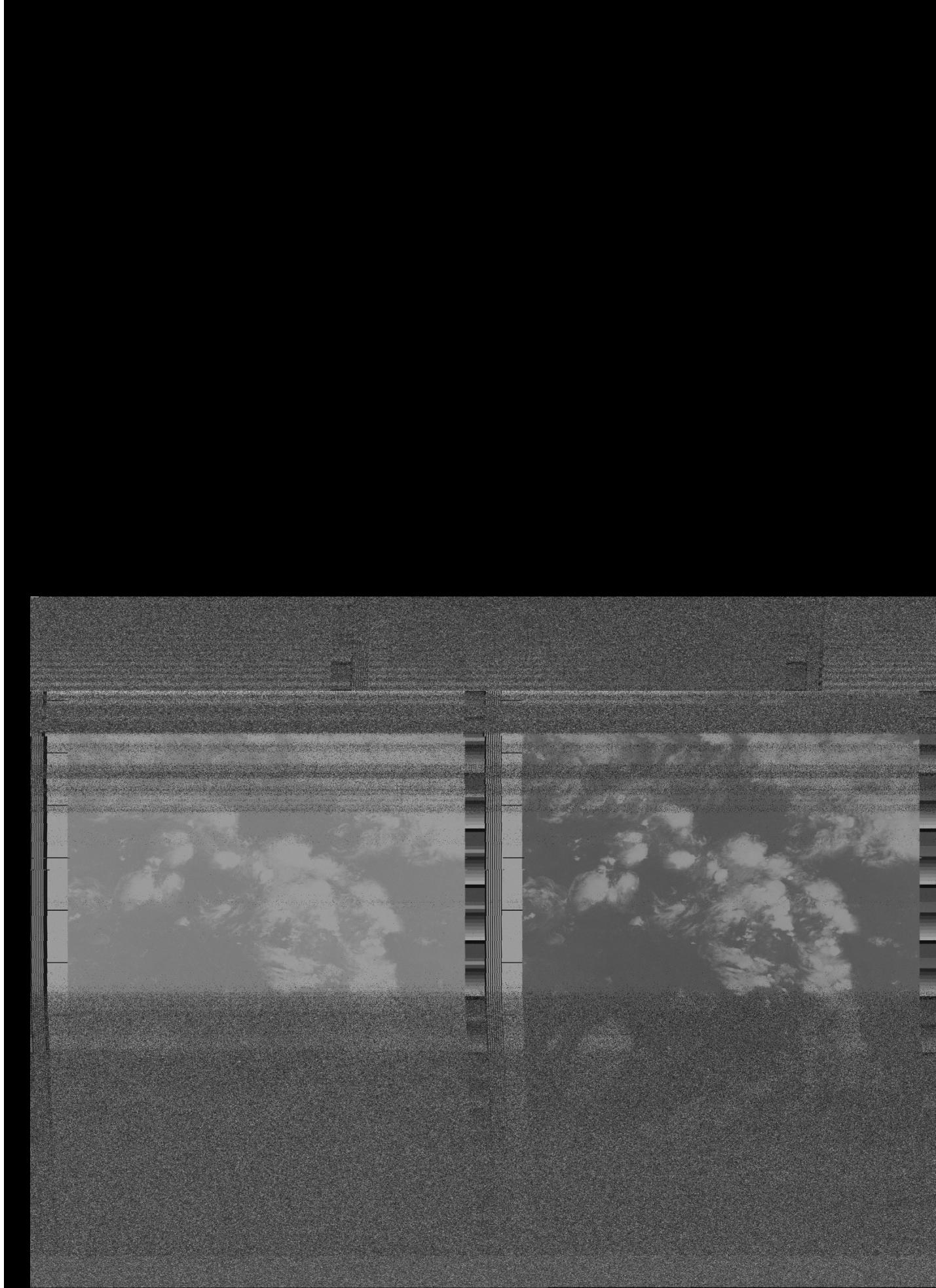
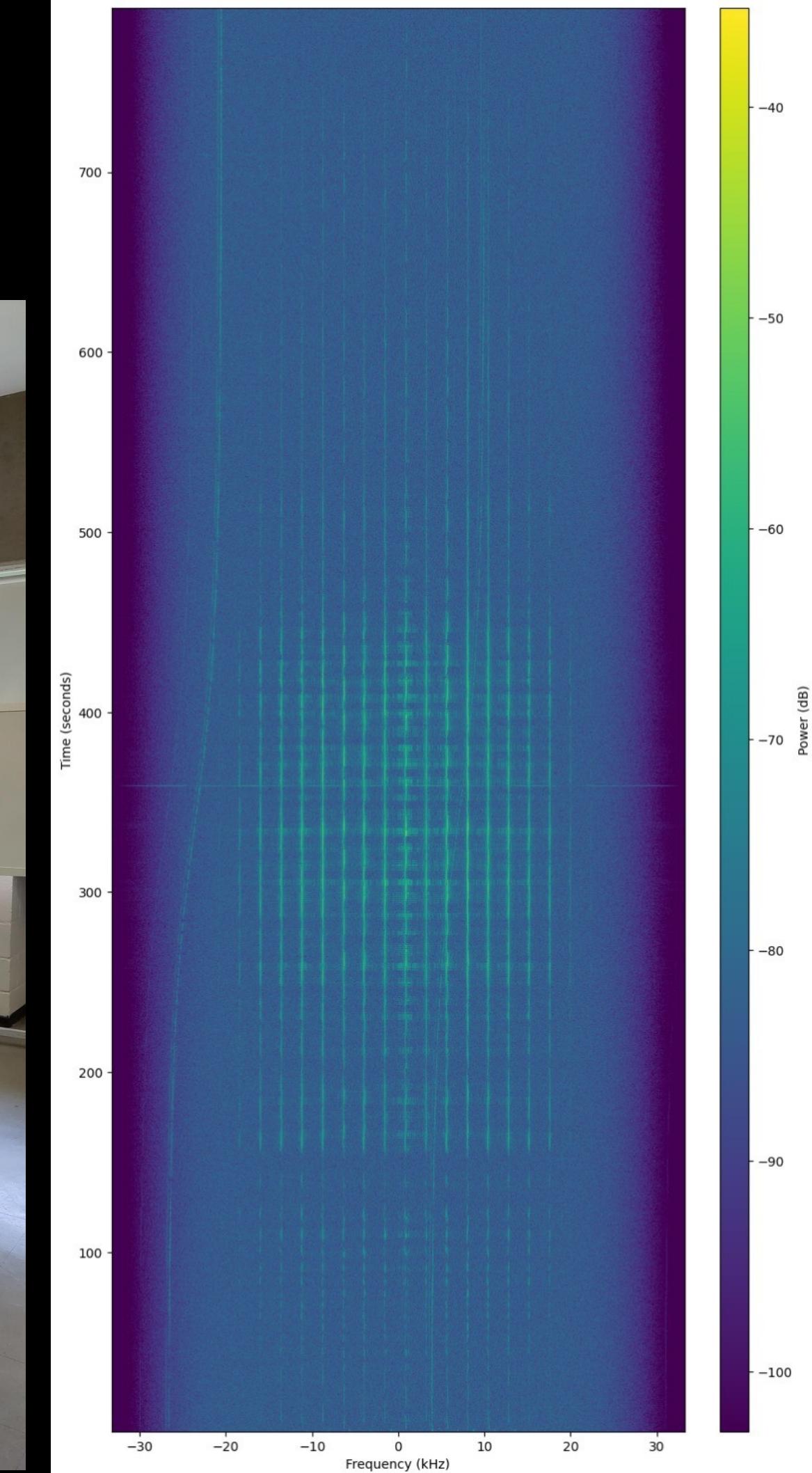
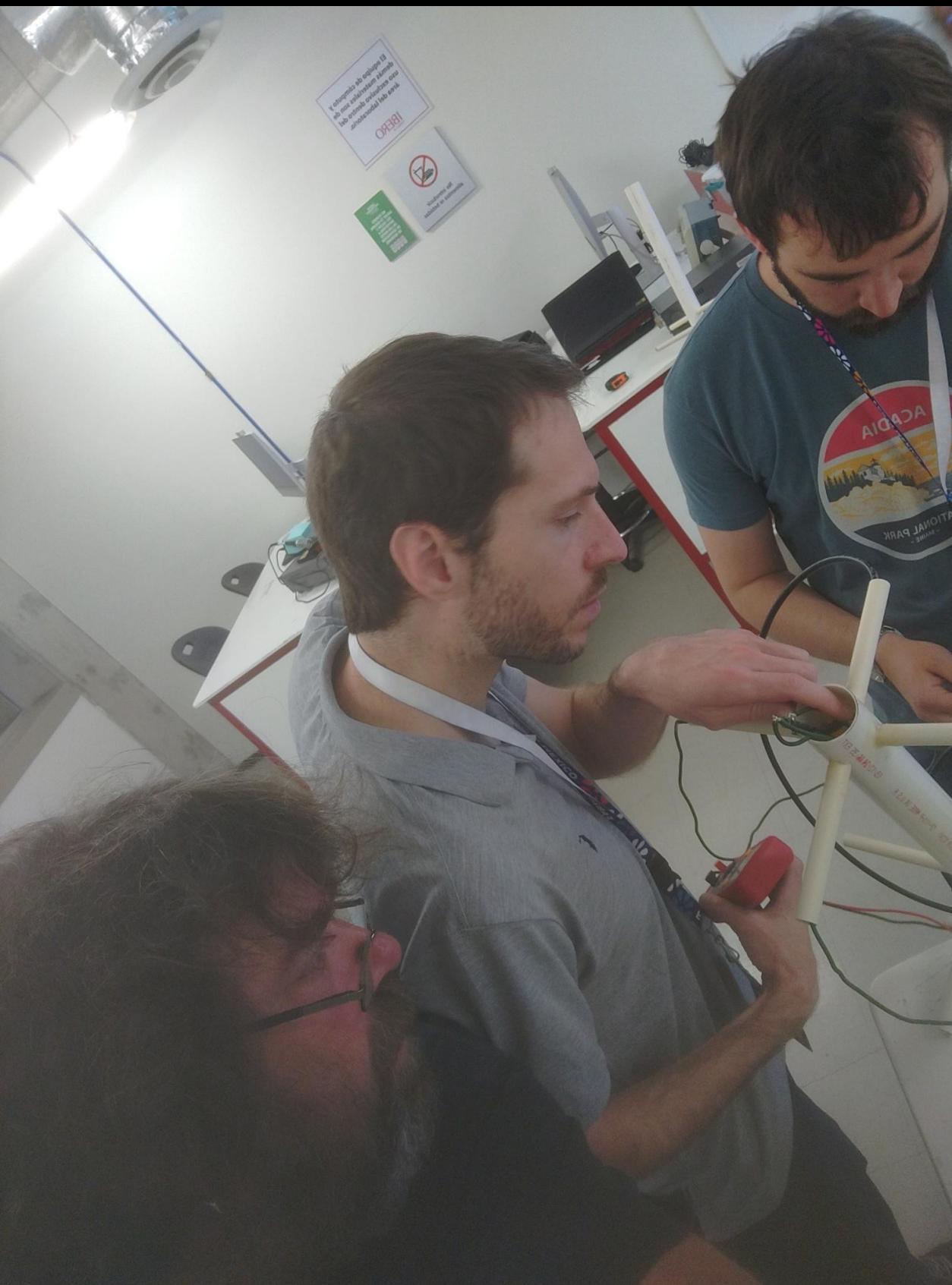
When you want to start developing for SatNOGS, you should [follow the installation instructions](#), then...

1. Read CONTRIBUTING.md file carefully.
2. Fork the [upstream repository](#) in GitLab.
3. Code!
4. Test the changes by [Running the tests locally](#) and fix any errors.
5. Commit changes to the code!
6. When you're done, push your changes to your fork.
7. Issue a merge request on Gitlab.
8. Wait to hear from one of the core developers.

If you're asked to change your commit message or code, you can amend or rebase and then force push.

- Detailed information on building your own ground-station or adding an existing station on the network

Fab24 - Mexico:



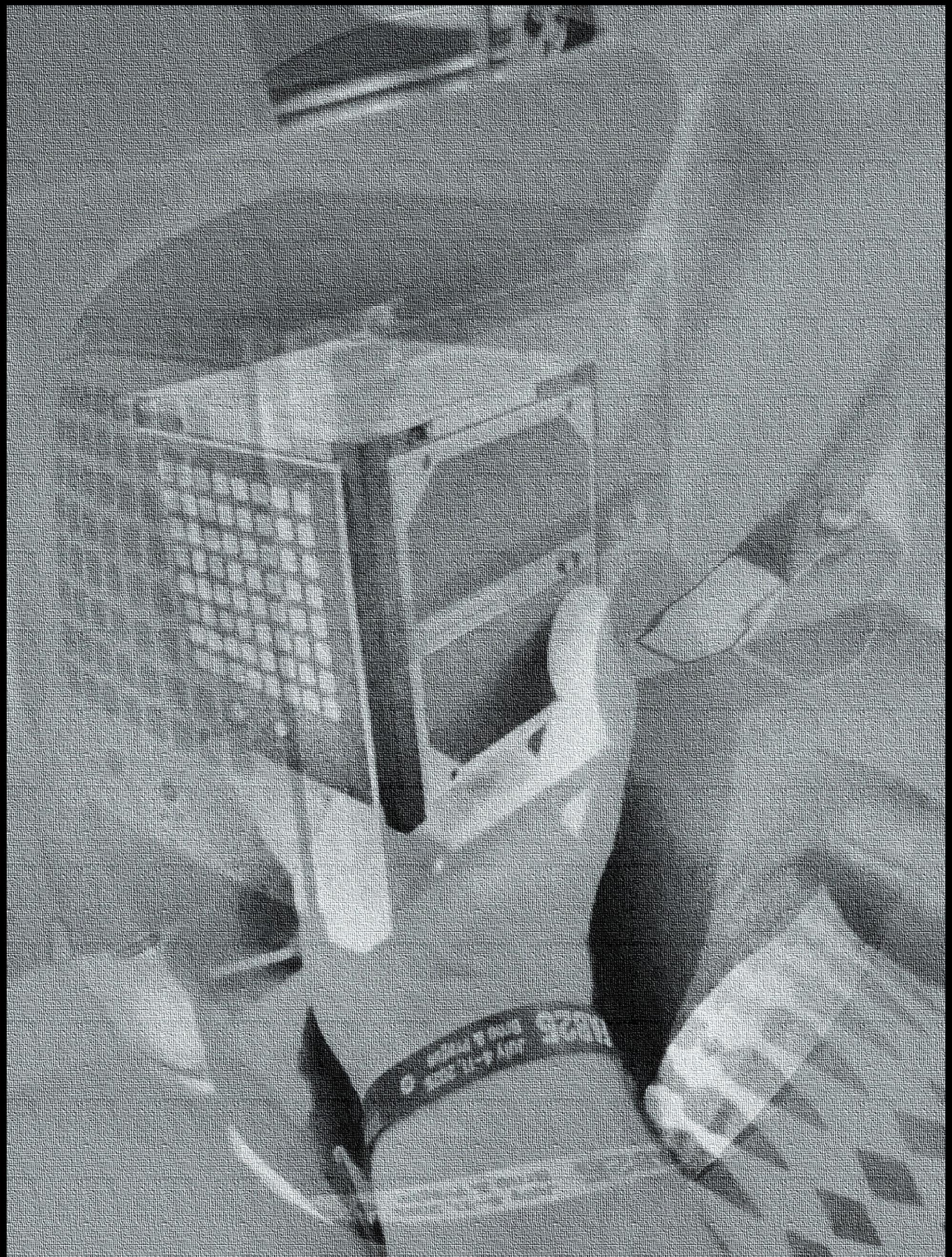
-antenna building and groundstation
workshop

Fab25: Brno



- antenna building and groundstation
operations workshop by Libre.Space

Next:



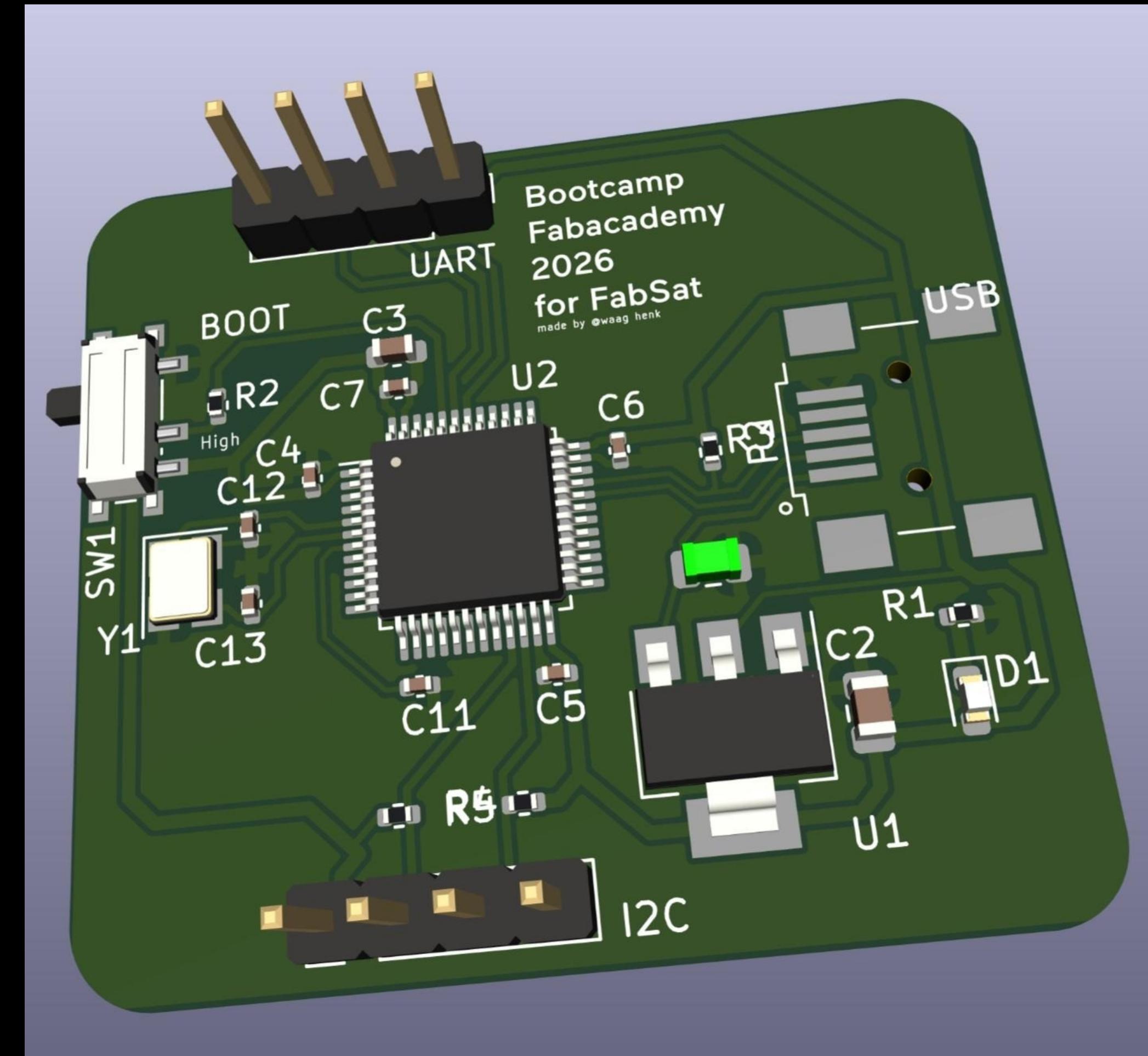
FabSat:

- a satellite that can be designed and built using the resources available in any Fab Lab worldwide.
- explores how space systems can be democratized through open-source and locally producible designs.

FabSat:

STM32F103C8Tx

- ARM® Cortex®-M3
- CANbus, I2C, IrDA, LINbus, SPI, UART/USART, USB
- DMA, Motor Control PWM, PDR, POR, PVD, PWM, Temp Sensor, WDT
- Low-power
- Up to 80 fast I/O ports
- 48-LQFP



Proof of concept:

- cubesat:

- central unit
- power
- communication

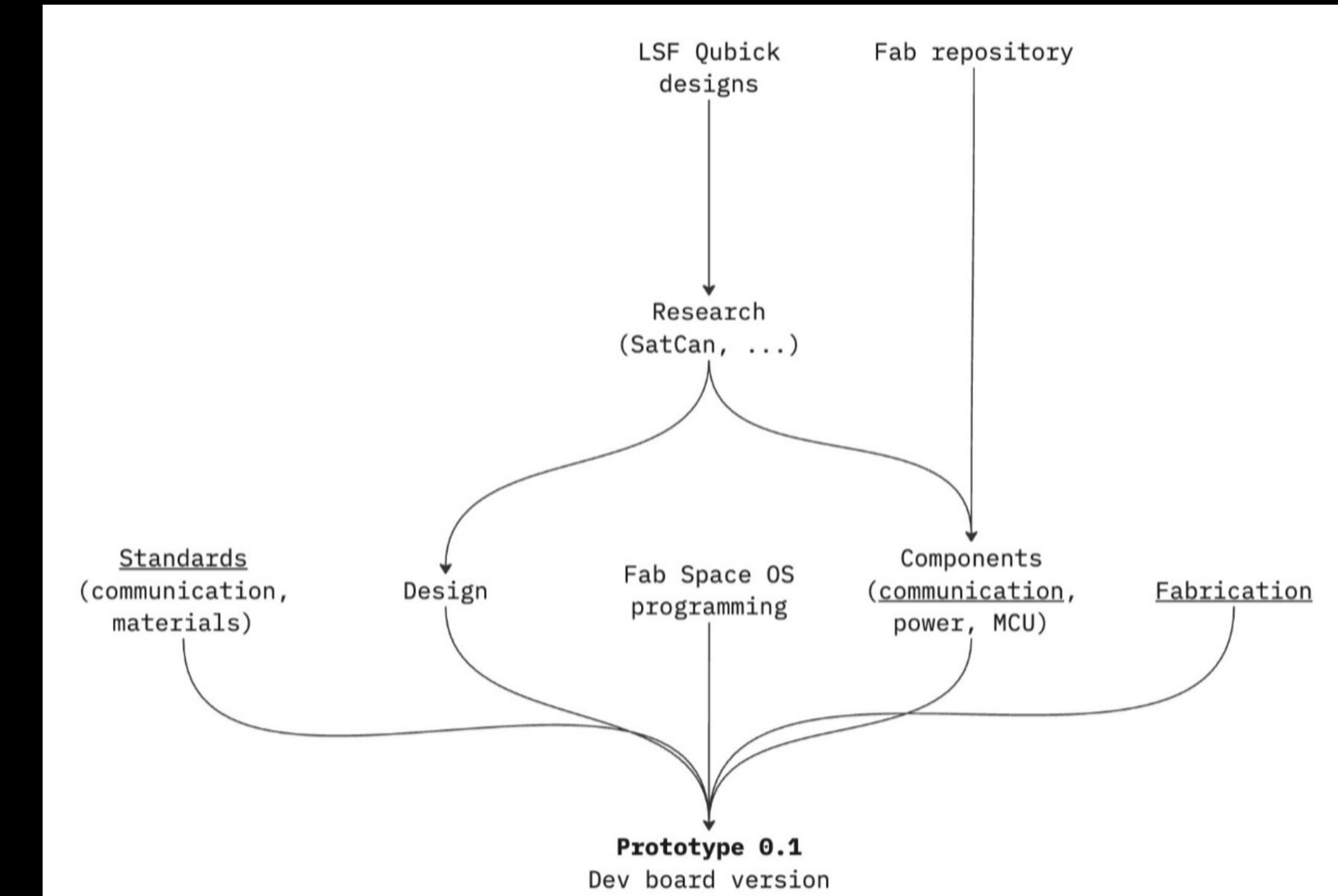
- Fab Space OS
- stm32 workflows
- reliable and safe OS

- Design

- Space grade material
(Prusament PC Space Grade)

- regulations:

- communication
- material
- ...



Why fablabs in space?

space is renowned for scientific milestones, from Moon landings to deep-space research. Yet, national and commercial interests dominate Earth-Space environment, claiming to serve humanity while sidelining civil and public perspectives. With the Fabsat project we want to explore how to make space more public. The maker community play a key role by linking local knowledge, diverse skills shaping its own societal and cultural agency.

Built on shared values of openness, ethics, decentralisation, and community engagement, envisioning a future where technology is not an instrument of power but a tool for the public good, knowledge-sharing, and societal transformation.

- We want a Public Outer Space.

Questions?