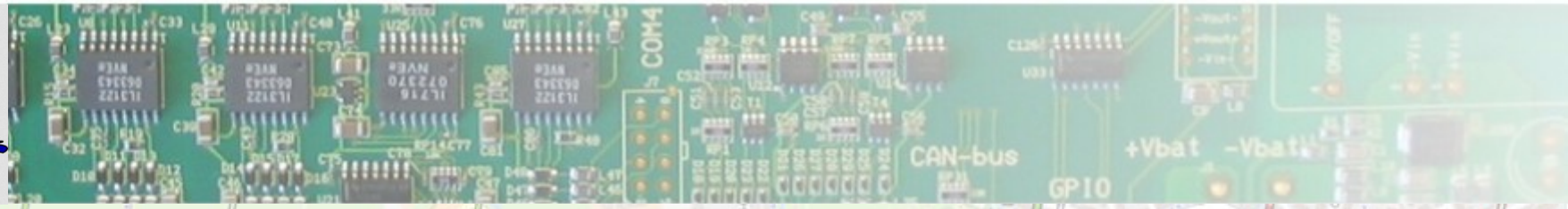



Opensource Meetplatform
voor

# Meet je Stad!

Andries Lohmeijer

KITT Engineering

# Meet je Stad!

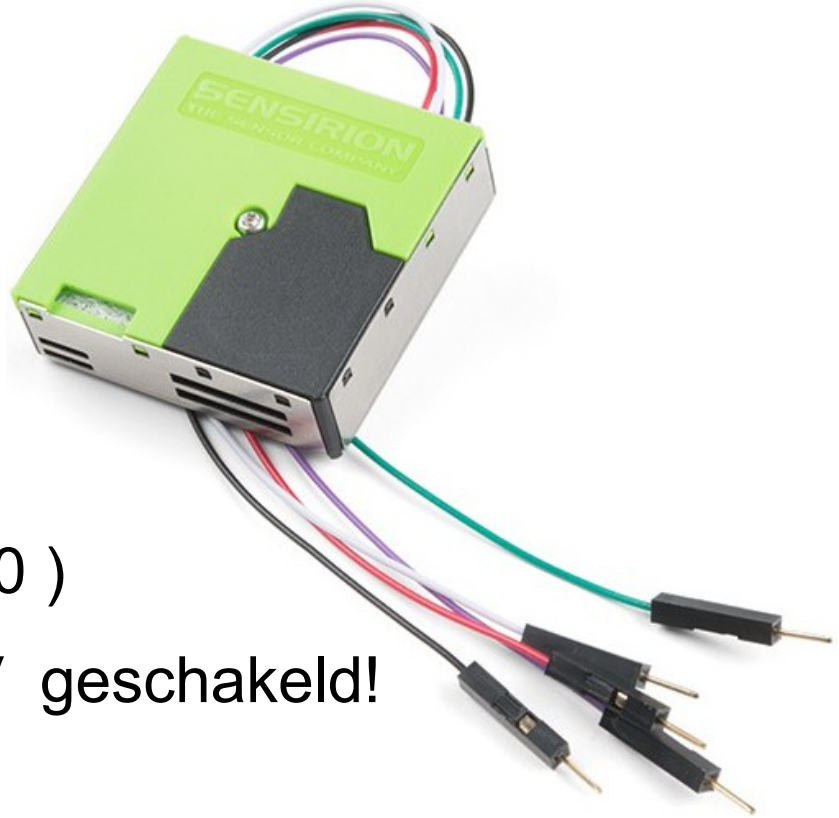
## Citizen Science Project

- Onderzoek “stadsklimaat”:
  - Observeren ( Flora )
  - Meten
- Zelfbouw meetkastjes
- Workshops, activiteiten
- Web interface, open database
- Participatie en community building

# PVE nieuw Platform

Toegankelijke meetopstelling voor Meet je Stad! activiteiten

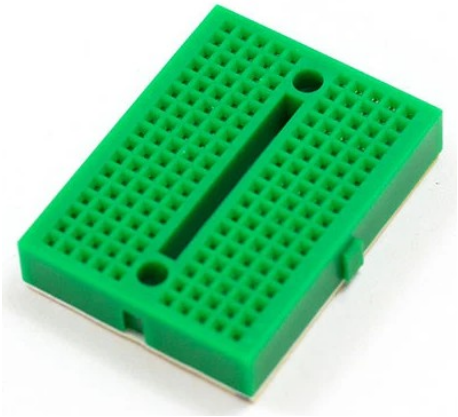
- Compatible met de eerste generatie:
  - Si7021 (Temp + Rh )
  - GPS Locatie
  - LoRaWAN netwerk
  - Arduino IDE compatible
  - Autonomie > 1 jaar
- Ondersteuning Fijnstof sensor ( SPS30 )
- Aansluitingen extra sensoren 3V3 / 5V  geschakeld!
- Meer RAM / Flash en rekenkracht
- Werkt “out of the box” doch ook ruimte voor experiment.



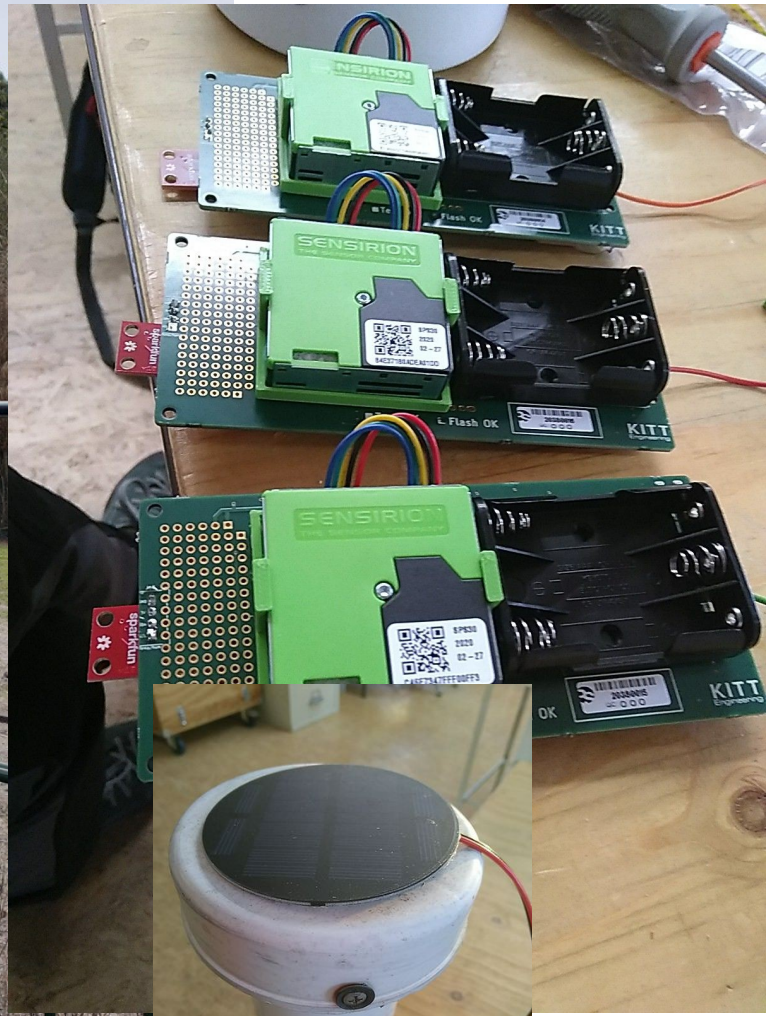
# Keuzes

Opensource hardware: KiCAD, Github, CERN OH Licentie

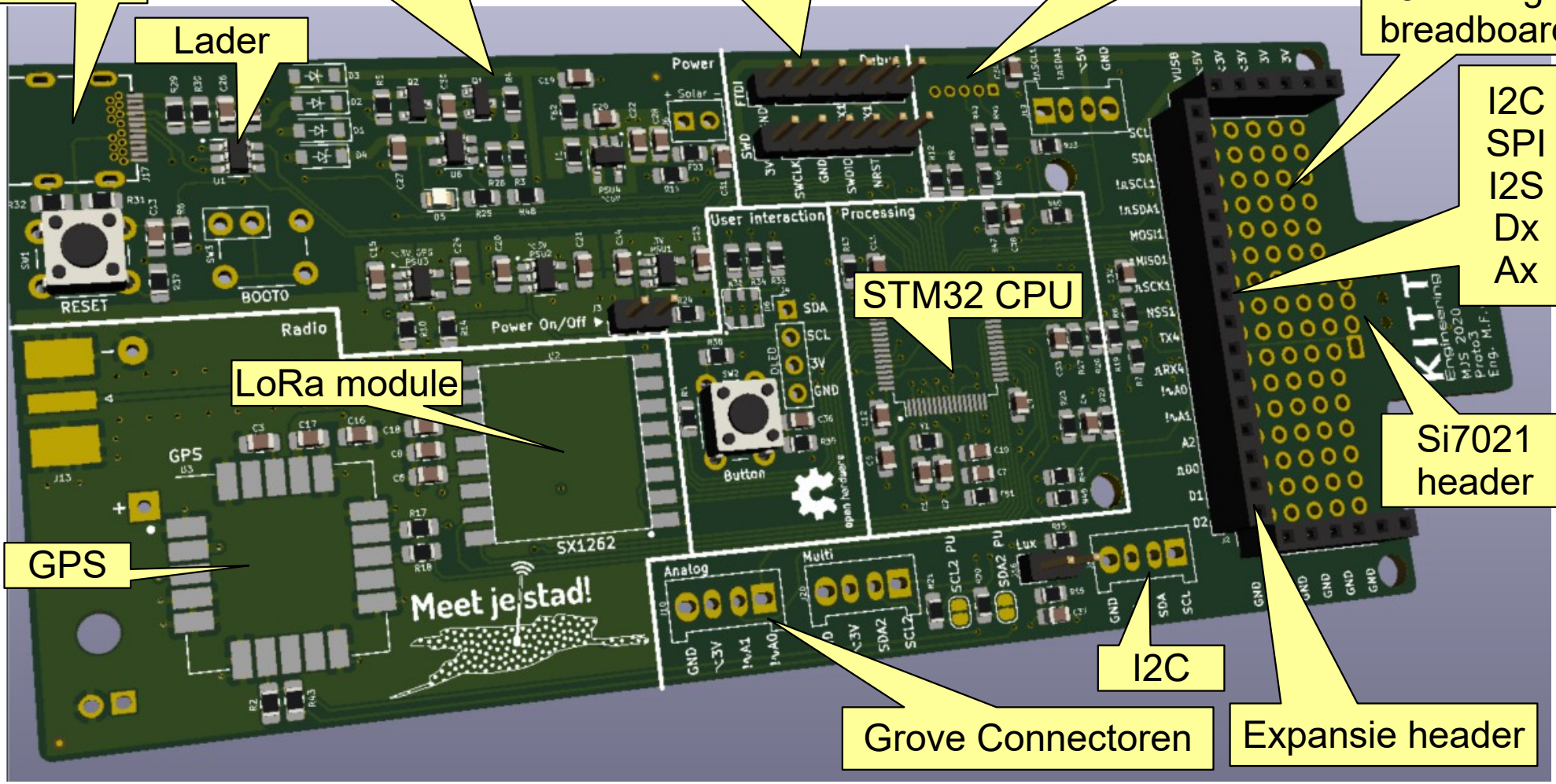
- SMT montage alle essentiële componenten
- Robuuste USB-C connector voor voeding/laden
- Geïntegreerde NiMH / Li-Ion lader + Zonnepaneel
- STM32 ARM 64 pin LQFP CPU → Pin compatible “smaakjes”
- 3V permanent, 3V geschakeld, 5V step-up geschakeld
- Netwerk sleutels+productie data in protected Flash memory
- Grove connector pinout
- Expansie connector
- Breadboard



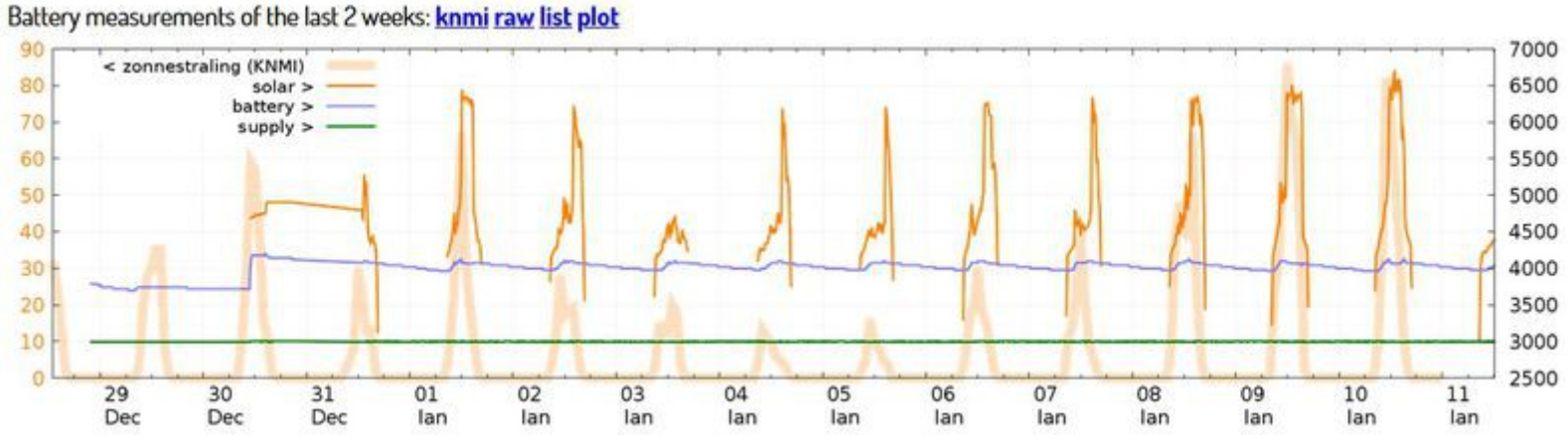
# Het resultaat:



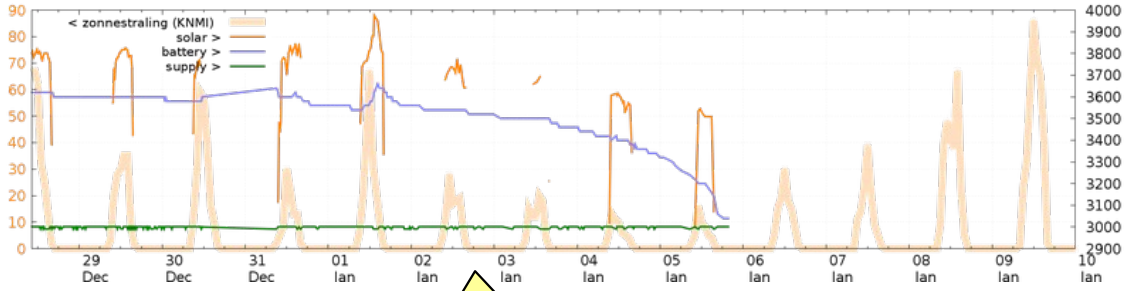
# De PCB


USB-C
Lader
3V& 5V voedingen
FTDI uart header
SPS30 connector
2.54 mm grid breadboard
I2C
SPI
I2S
Dx
Ax
STM32 CPU
LoRa module
Si7021 header
GPS
I2C
Grove Connectoren
Expansie header
Power
Debug
User interaction
Processing
Radio
Analog
Multi
RESET
BOOT0
Power On/Off
Button
SX1262
Meet je stad!

# Solar Performance



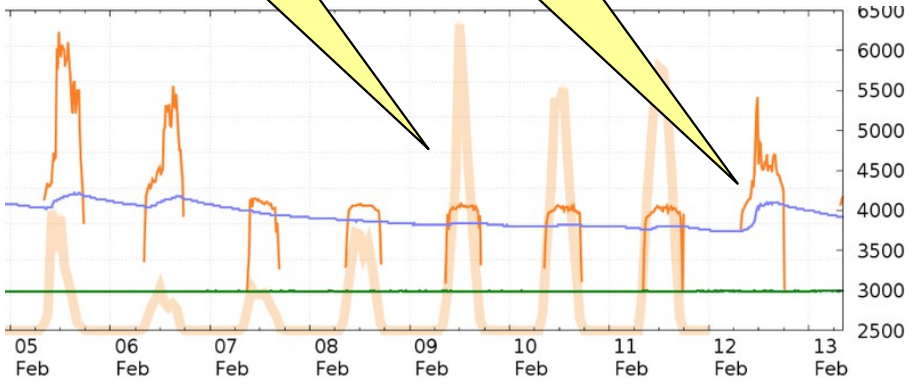

1.5 $W_{peak}$
nokkie
nokkie




Ondercapaciteit 0.5 $W_{peak}$
vertikale oriëntatie

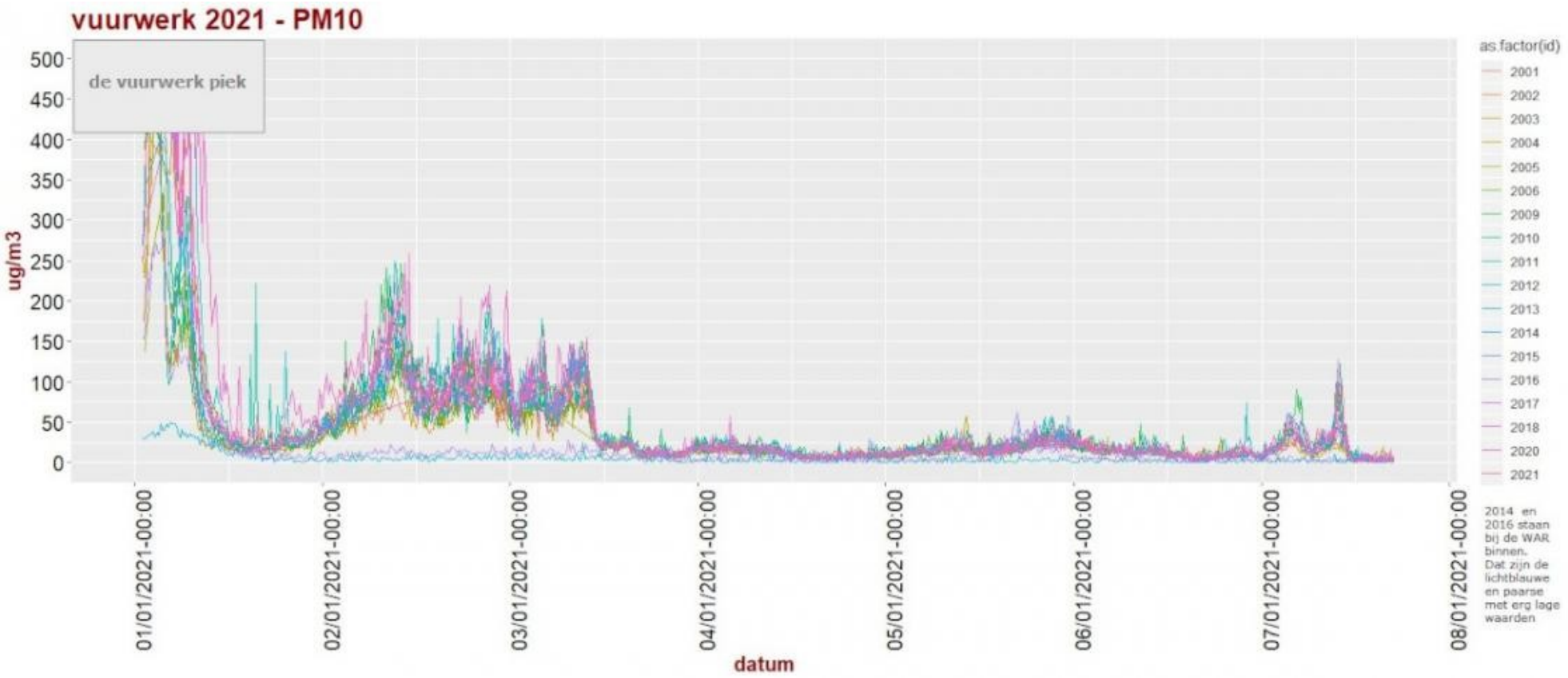
Sneeuw
op paneel

Herstel
lading




Grafieken door Peter Demmer ( zie het link sheet )

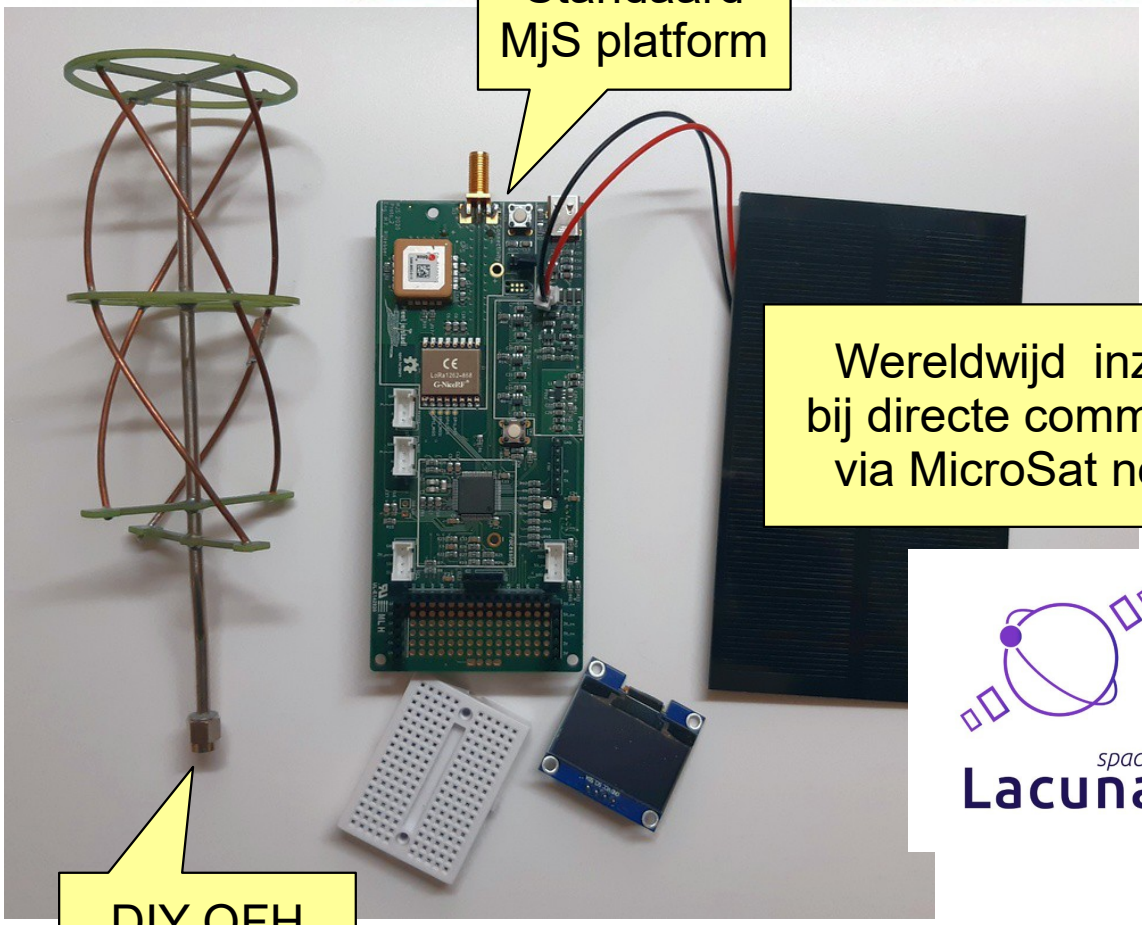
# Oud & Nieuw



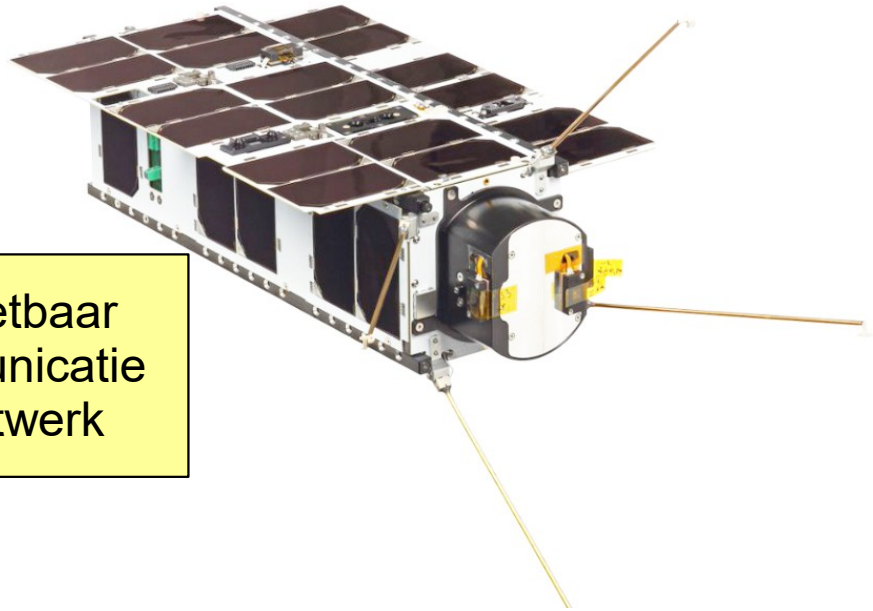

Grafiek door Marjolein ( zie het sheet met links )

# Satelliet

Standaard
MjS platform

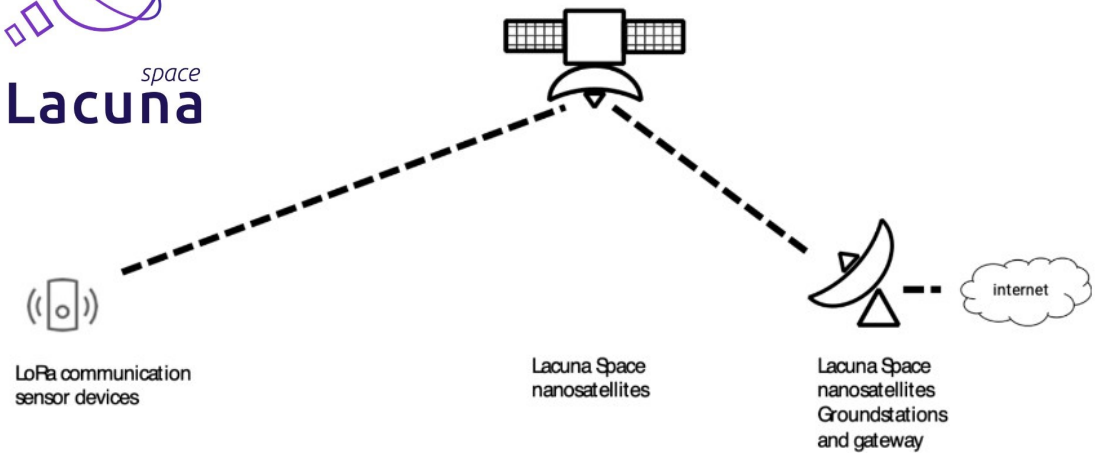


DIY QFH
Antenna



Wereldwijd inzetbaar
bij directe communicatie
via MicroSat netwerk

space Lacuna



# Roadmap

Ontwikkeling MjS platform V3:

| | |
|---|---|
| Q4 2020 | proto types V2 |
| Q1 2021 | validatie V2, revisie V3 (15 stuks) |
| Q2 2021 | Pilot fase met V3 ( 50 stuks ) |
| Q3 2021 | Opschalen na validatie V3 |
| Q4 2021 | Target > 1000 stuks in 2021 |

# Link Pagina

## Relevante Links:

https://meetjestad.net/nl/Welkom_bij_Meet_je_Stad

https://meetjestad.net/nl/Nieuwsbrief

https://app.element.io/#/room/%23meetjestad:matrix.org

https://forum.meetjestad.net/

https://github.com/meetjestad/mjs_boards

https://meetjestad.net/static/graphs

Peter Demmer

https://kitt.nl/

KITT Engineering

# Credits

## Met dank aan het team van Meet je Stad!:

Matthijs, Harmen, Diana, Peter, Paul, Stefan, Marjolein, Maaike, Mathijs, Egon, Bas, Kees, Thomas en vele vele anderen!

## Alle gegevens over dit project worden gepubliceerd op de website van