



CANSAT

Schueberfouer

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The background is a vibrant, abstract space scene. It features a gradient from red on the left to blue on the right, with large, soft-edged, overlapping shapes in shades of pink, purple, and blue. Scattered throughout are small white stars and several stylized planets. In the top left, there's a planet with blue and green stripes. In the bottom right, there's a planet with yellow and red stripes and a prominent orange ring. Other planets are depicted with various patterns and colors like purple and blue.

01

Who are we ?

Schueberfouer

Schueberfouer



Schueberfouer is a national festival, a source of fun for young Luxembourgish adolescents.



For us, Cansat represents this source of fun, therefore we wanted to resemble this in our name and equally represent our country.

Our team's members



SCHMITZ Marylou

- 16 years old
- Engineer
- Have fun
- Challenge



LIN Mathieu

- 17 years old
- Engineer
- Know coding



LEGGÉ Imogen

- 16 years old
- Astrophysicist
- Discover and learn



GOUEDARD Blanche

- 16 years old
- Engineer
- Preparation for future

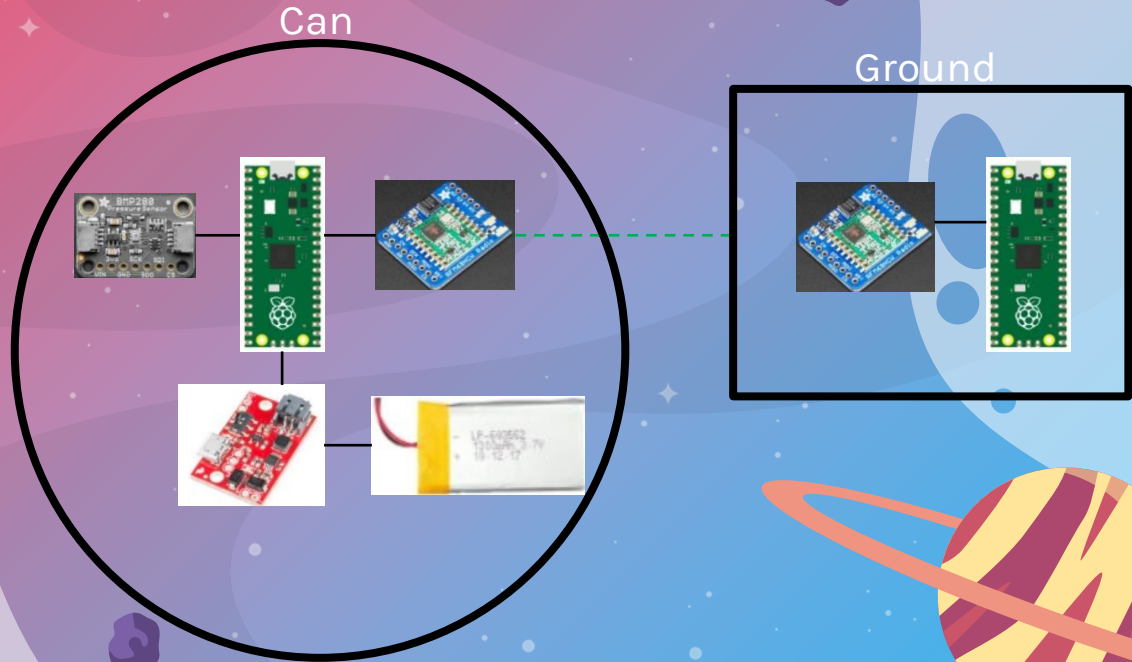
The background is a vibrant, abstract space scene. It features a gradient from red on the left to blue on the right. There are several stylized celestial bodies: a planet with blue and green stripes in the top left, a planet with orange and brown stripes in the bottom right, and a ringed planet with yellow and red stripes in the bottom right. There are also several moons and small dark rocks scattered throughout. The overall style is colorful and illustrative.

02

Missions

Primary and secondary missions

- Measures the pressure and the temperature
- Communicates with Raspberry Pi on the ground
- Calculates the altitude and the speed



Constraints

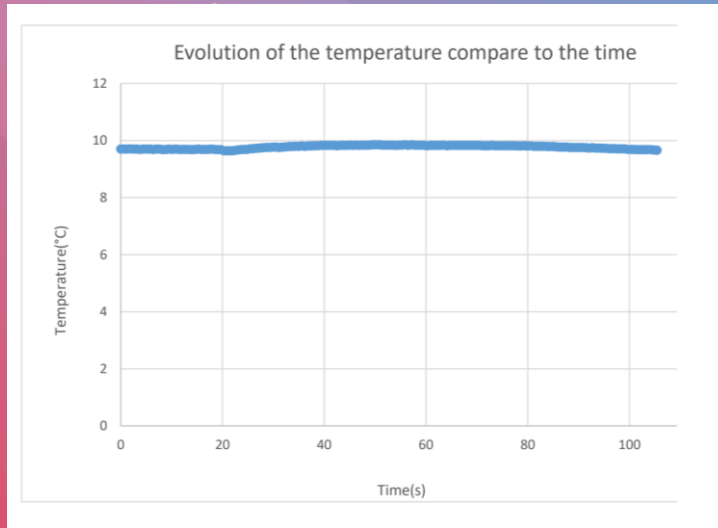
$$\Delta t = \frac{2,0 \cdot 10^6}{\frac{16,3 \cdot 10^3}{15}} = 1,84 \cdot 10^3 \text{ min} = 30 \text{ h } 40 \text{ min}$$

- Battery
- Storage

Results :



Temperature :



Pressure and altitude :

$$P_0 = 1012,7 \text{ hPa}$$

$$g = 9,81 \text{ N/kg}$$

$$\rho = 1,225 \text{ kg/m}^3$$

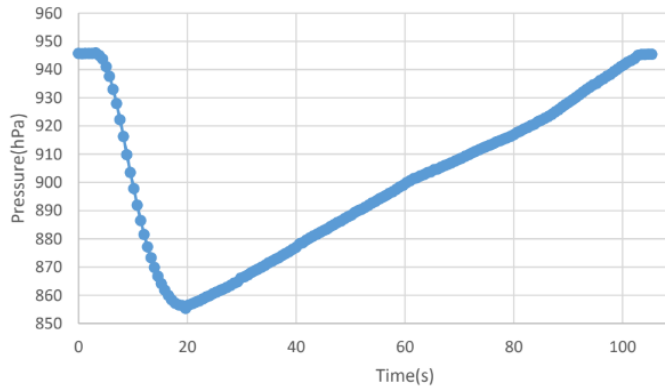
$$\Delta P = -\rho \cdot g \cdot \Delta z$$

$$P_0 - P_1 = \rho \cdot g \cdot z$$

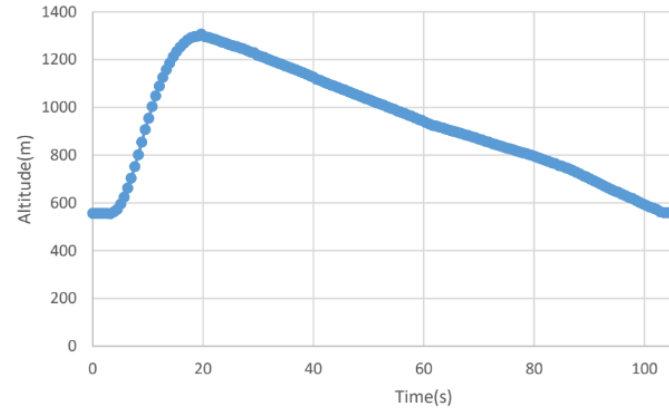
$$P_1 = P_0 - \rho \cdot g \cdot z$$

$$P_1 = 1012,7 \cdot 10^2 - 1,225 \cdot 9,81 \cdot 1306,34 = 8,56 \cdot 10^4 \text{ Pa} = 856 \text{ hPa}$$

Evolution of the pressure compare to the time

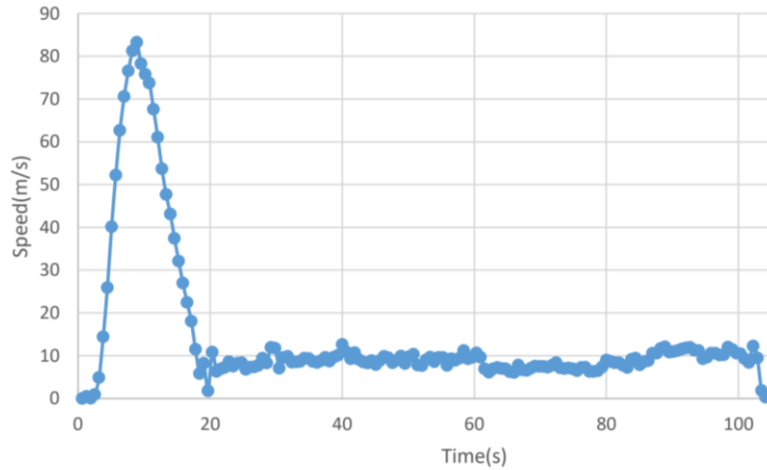


Evolution of the altitude compare to the time



Speed

Evolution of the speed compare to the time



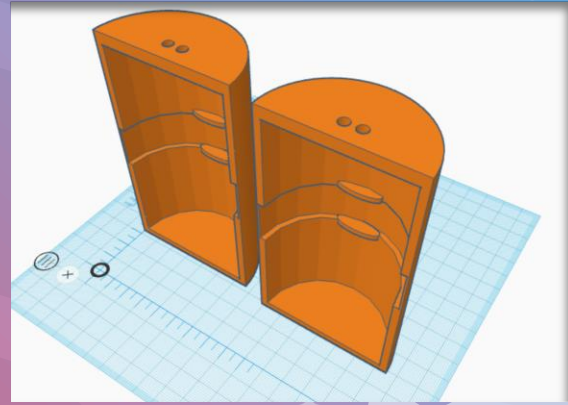
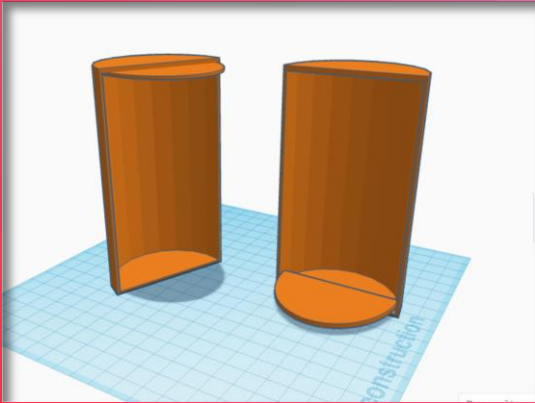
The background is a vibrant, abstract space scene. It features a gradient from red on the left to blue on the right. There are several stylized planets: one with blue and green stripes in the top left, one with orange and brown stripes in the bottom right, and a ringed planet with yellow and red stripes in the bottom right. The scene is filled with small white stars and larger, dark purple celestial bodies.

03

Mechanical

Can

Our first design



Our final design

Parachute

- Final module of the parachute
- Sturdy and waterproof fabric (rip-stop)
- Enlarged with a radius of 19 cm (diameter = 38 cm)
- Strings : 50 cm long and sowed to the fabric

$$\pi R^2 = 0,06 \text{ m}^2$$
$$R^2 = \frac{0,06}{\pi}$$
$$R = \sqrt{\frac{0,06}{\pi}}$$

power
↓

$$R = 0,14 \text{ m} = 14 \text{ cm}$$

Surface minimale

$$\pi R^2 = 0,11 \text{ m}^2$$
$$R^2 = \frac{0,11}{\pi}$$
$$R = \sqrt{\frac{0,11}{\pi}}$$
$$R = 0,19 \text{ m} = 19 \text{ cm}$$

Surface maximal



The Antenna

REQUIREMENTS

Freq. [MHz]

Boomlength [m]

Gain [dBd] (approx.)

Elements

Diameter of parasitic Elements [mm]

Diameter of Boom [mm]

Is the boom isolated from parasitics ? yes no

[SHOW ME THE DETAILS](#)

DESIGN DATA FOR YOUR YAGI

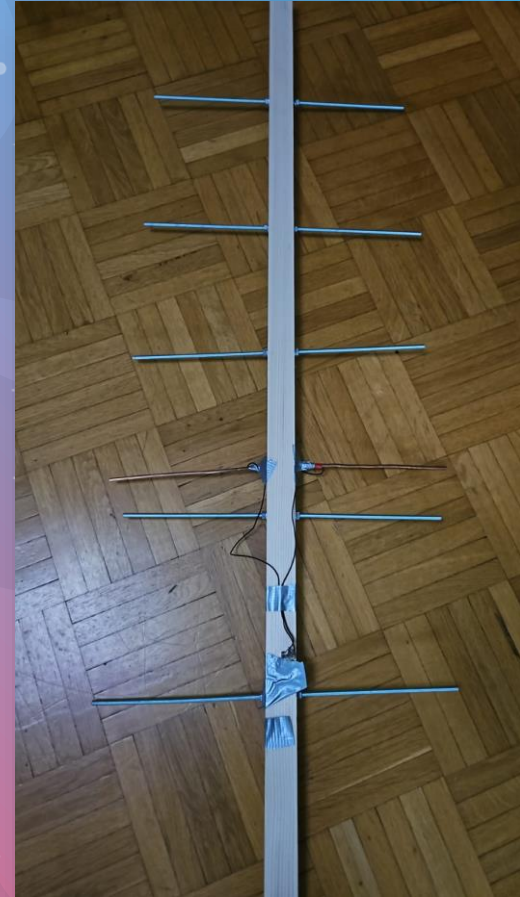
Rod Diameter : 10 mm
Boom Diameter : 20 mm
Boom Length : 240 mm
d/lambda : 0.014 (min.: 0.002, max.: 0.01)
D/lambda : 0.029 (min.: 0.01, max.: 0.05)
Elements : 3
Gain : 5.23 dBd (approx.)

Reflector Length : 336 mm
Reflector Position : 0 mm

Dipole Position : 168 mm

Director #1 Position : 220 mm , Length : 317 mm
Distance Dipole - Dir. #1 : 52 mm

Directors / Parasitics are isolated.
Please choose an isolater thicker than : 10 mm



The background is a vibrant, abstract space scene. It features a gradient from red on the left to blue on the right, with soft, wavy nebulae in shades of purple and pink. Several stylized planets are scattered throughout: a blue and green striped planet in the top left, a brown and orange striped planet below it, a yellow and red striped planet with a red ring in the bottom right, and several smaller, dark purple, cratered planets. Small white stars are scattered across the background.

04

Communication

Instagram



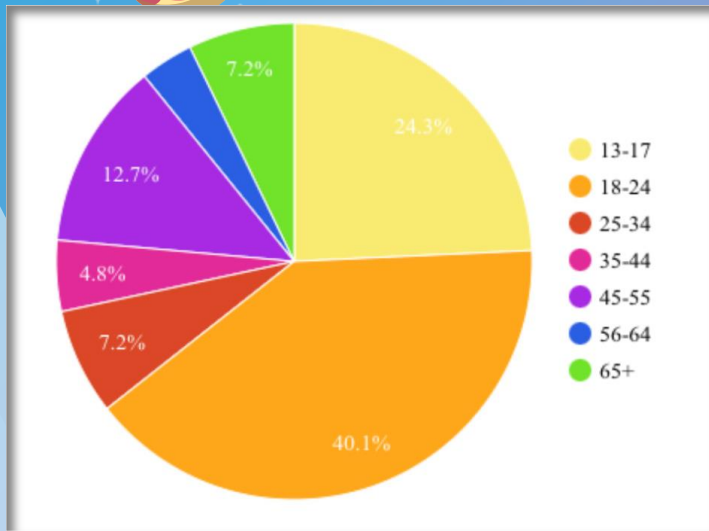
28
posts

176
followers

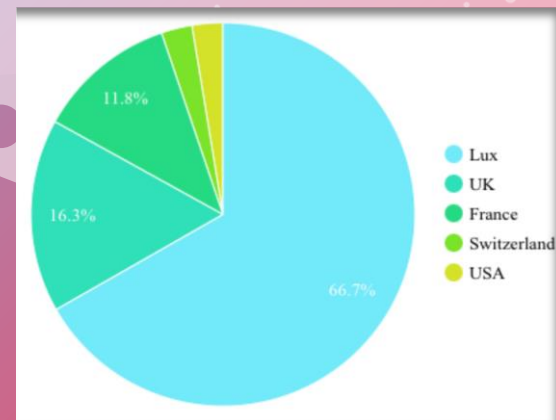
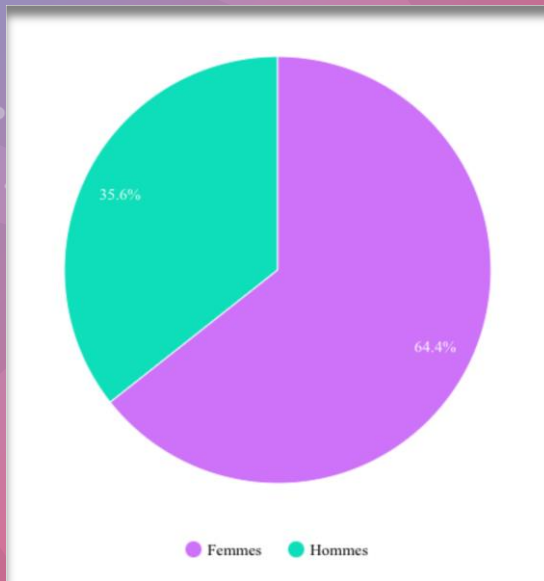
6
following

Schueberfouer_cansat
Cansat 2023-2024

- Communication of the projet
- Public's reaction



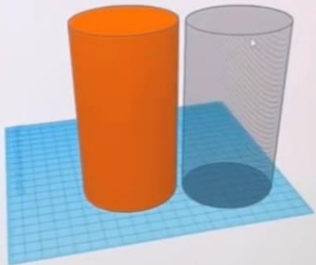
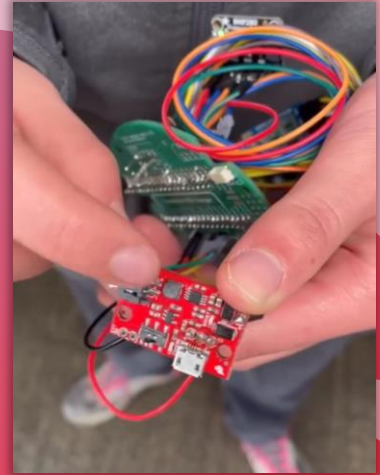
Gender of the people who viewed the account



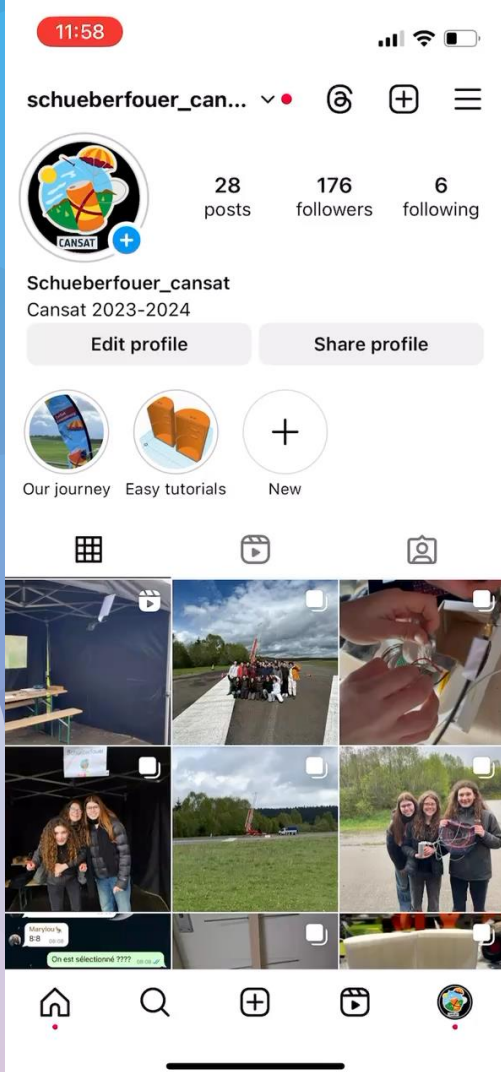
Countries of the people who viewed the account

Content

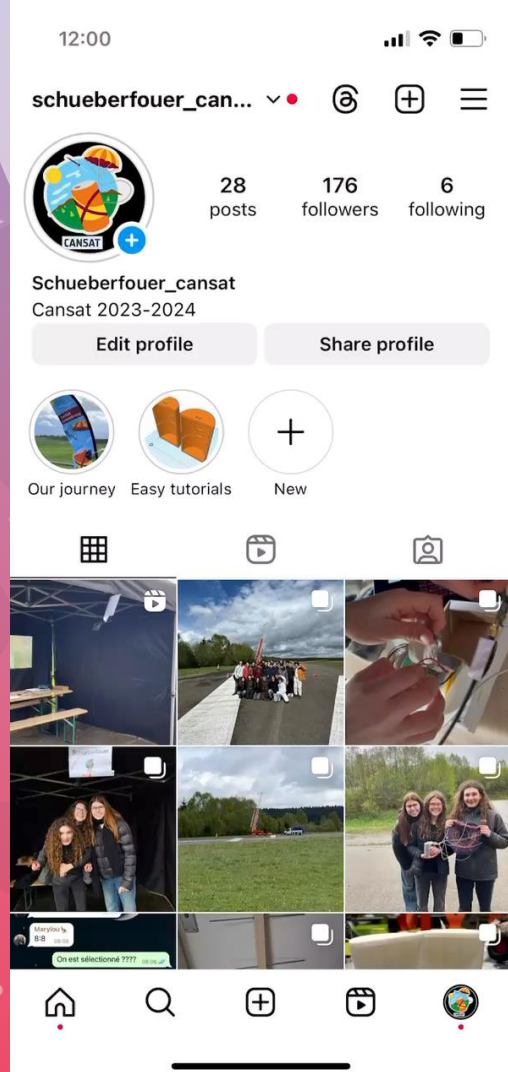
- Tutorials : followers understand basic things :
 - 3D design of the can and how to make it hollow
 - How to obtain the data from the can to the computer using the antenna
- Vlog : viewers may follow our journey and perhaps want to participate next year:
 - Bus
 - Launch
 - Activities



The vlog of our journey



Tutorials



Summary

- What we discovered:
 - We can actually make a satellite from scratch
- What we learned:
 - How to welder
 - How to design in 3D
 - How to code
 - How to create an antenna
- What we enjoyed:
 - Working as a team
 - Learning / discovering
- What we are thankful for:
 - For the entire experience