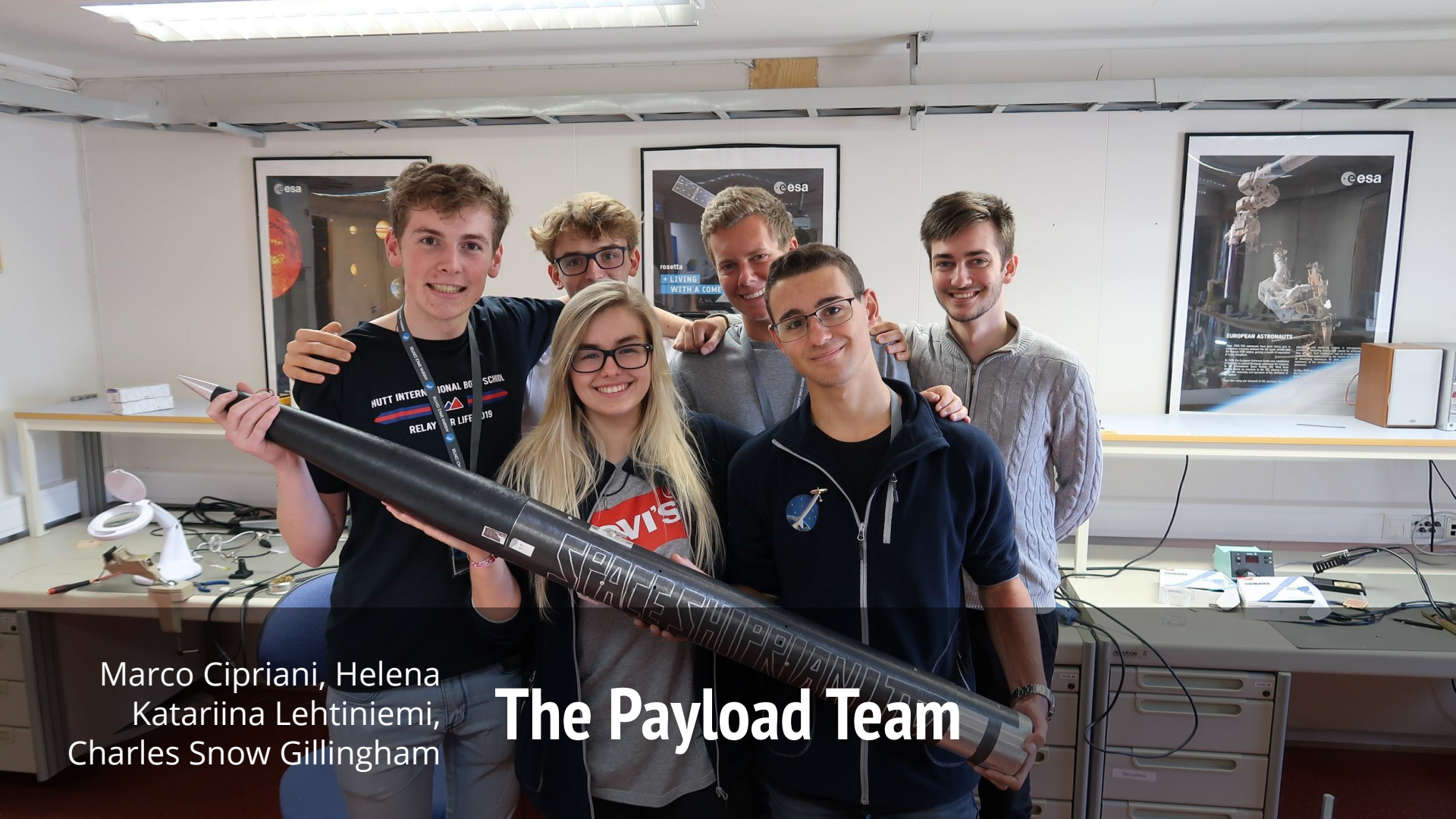


The Payload Team

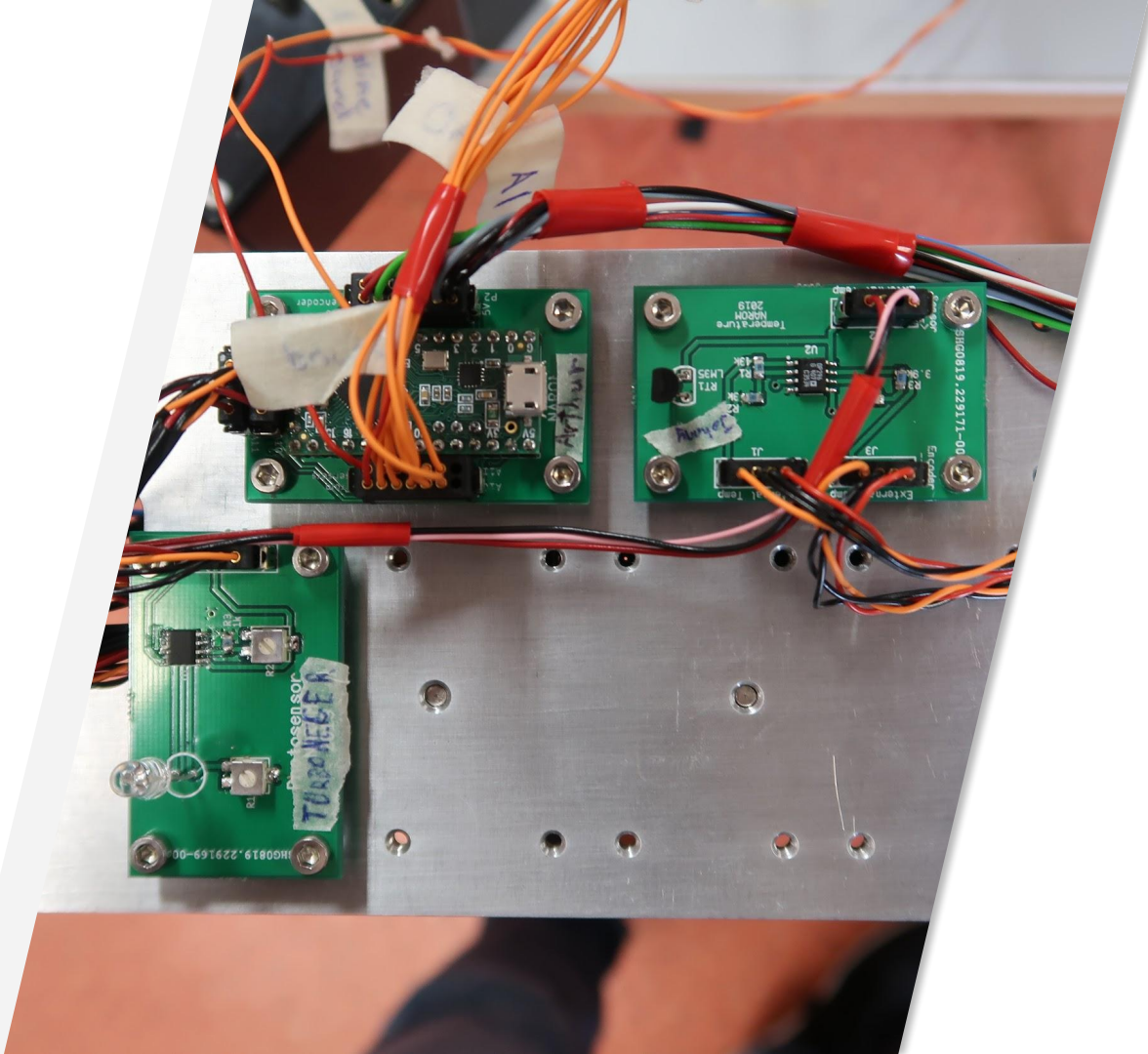
Marco Cipriani, Helena Katariina Lehtiniemi, Charles Snow Gillingham

Step 1: adding the transmitter (Boris) and the encoder (Ottorino)

- Near the back and the external connector (Sans)
- They must be connected to the antennas and to all the sensors

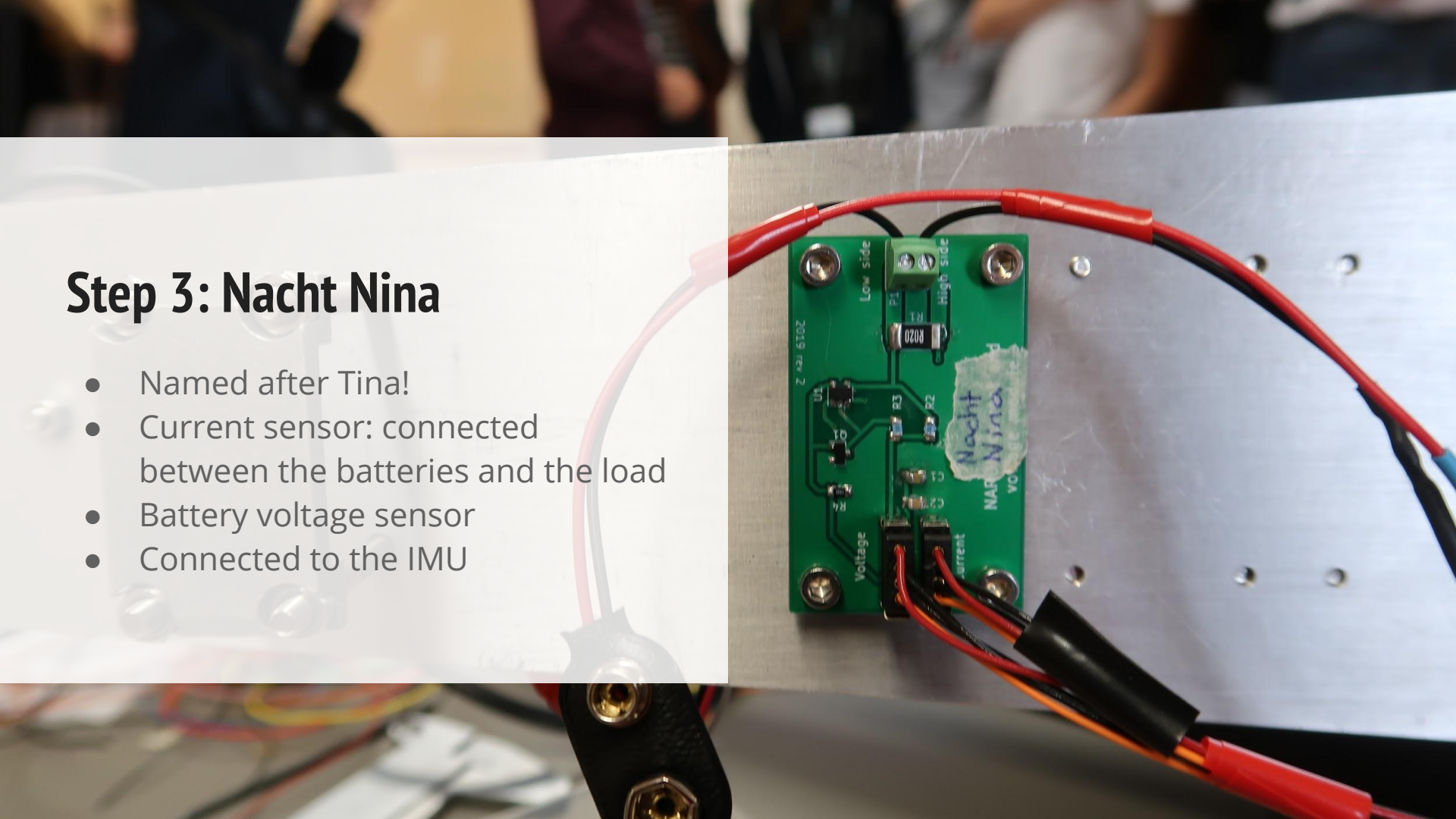
Step 2: Johnny

- Internal temperature sensor (PCB) to measure how hot the circuits are
- External sensor (Henry) near the antenna to measure outer temperature
- Signal amplification



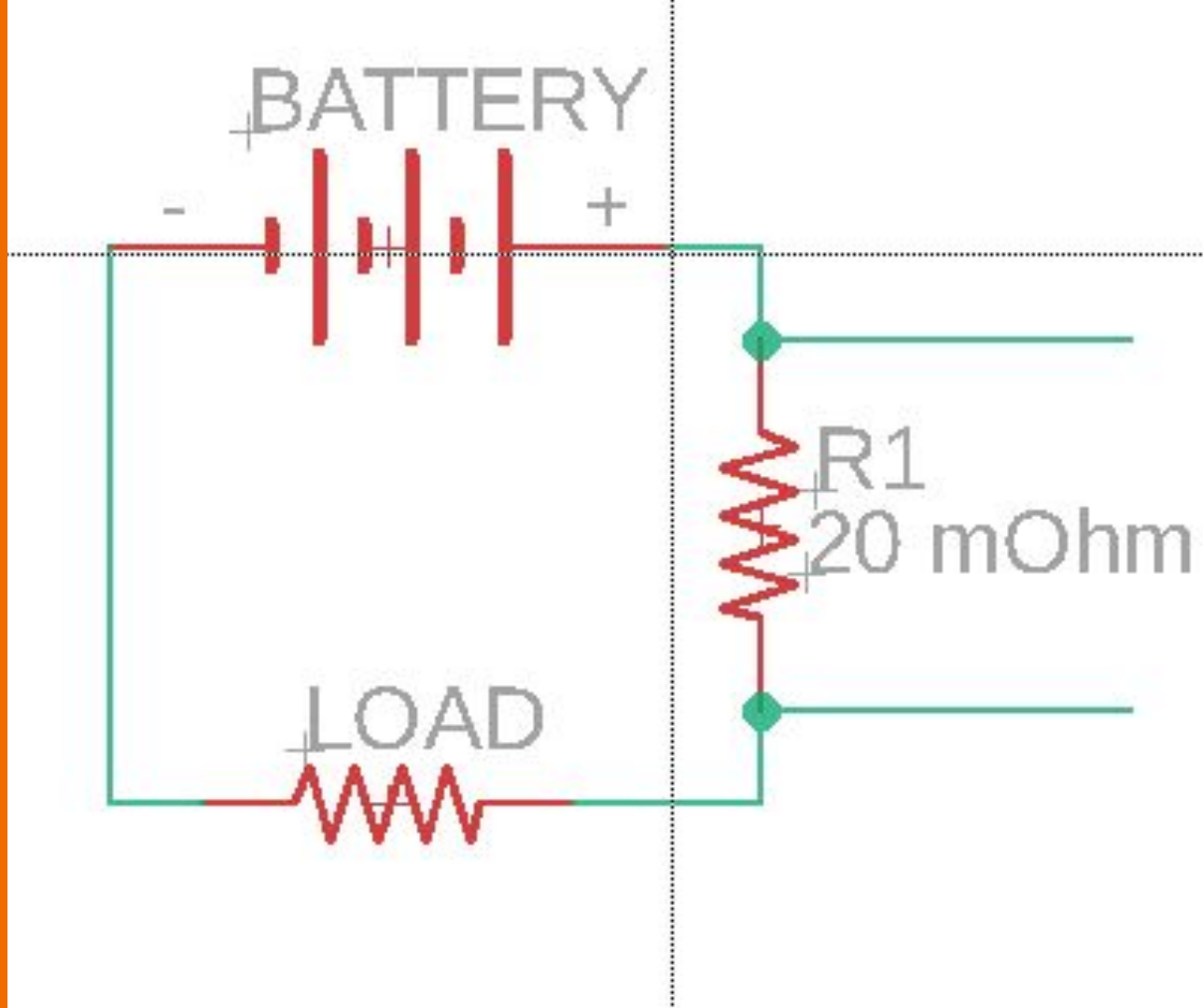
Step 3: Nacht Nina

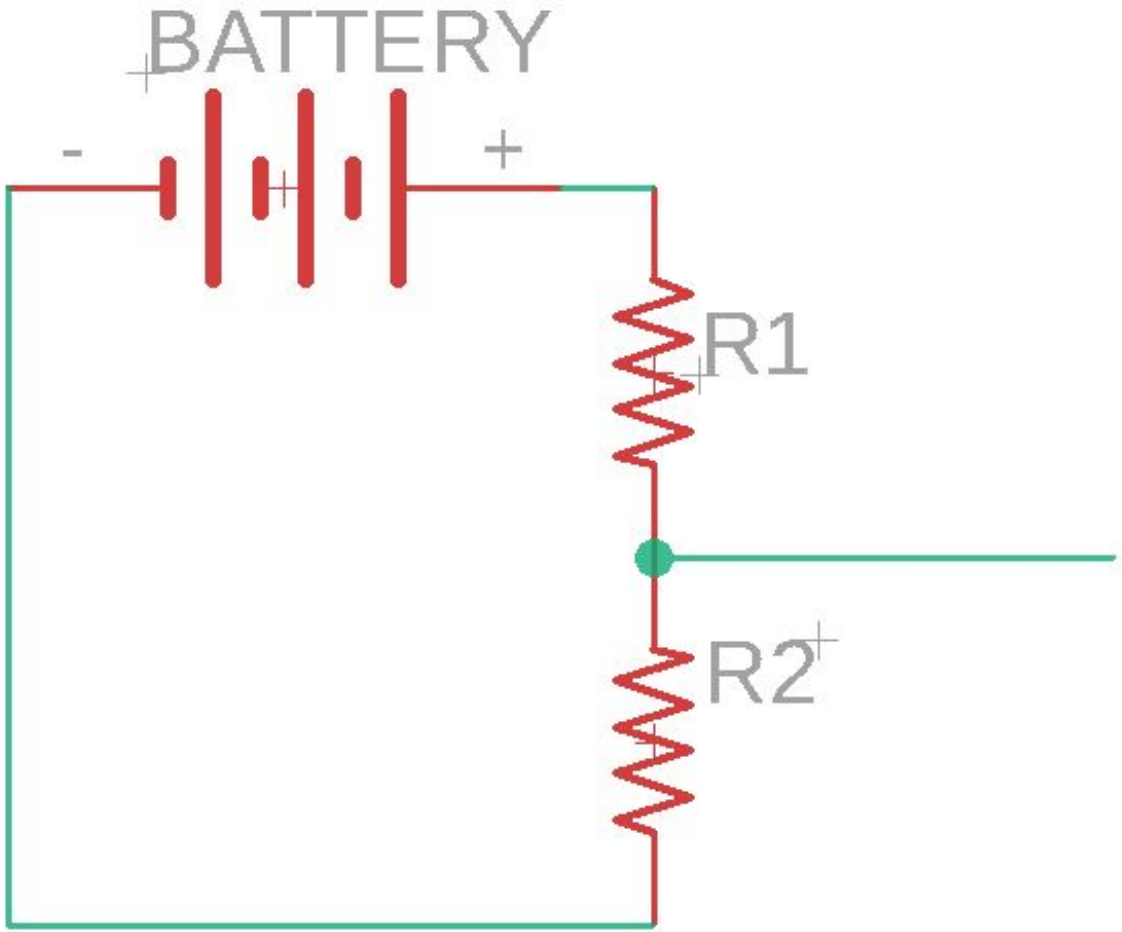
- Named after Tina!
- Current sensor: connected between the batteries and the load
- Battery voltage sensor
- Connected to the IMU



Measuring the current

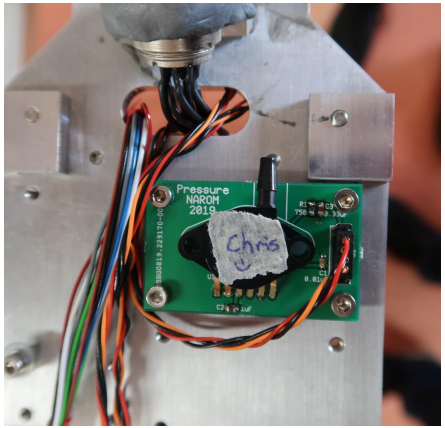
Detect voltage drop between the leads of the small R1 resistor and then use Ohm's law (V=R*I)

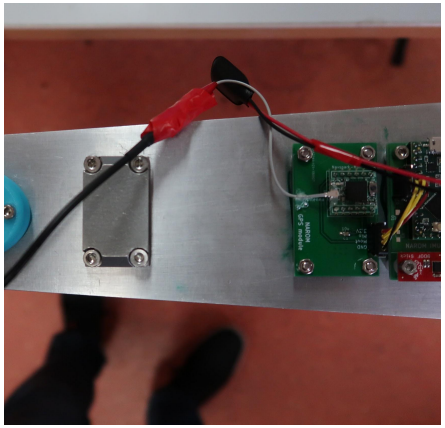
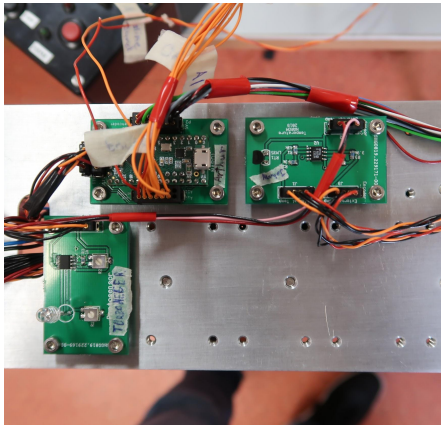
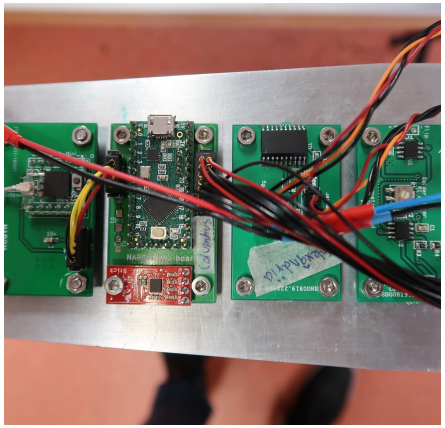




Measuring battery voltage

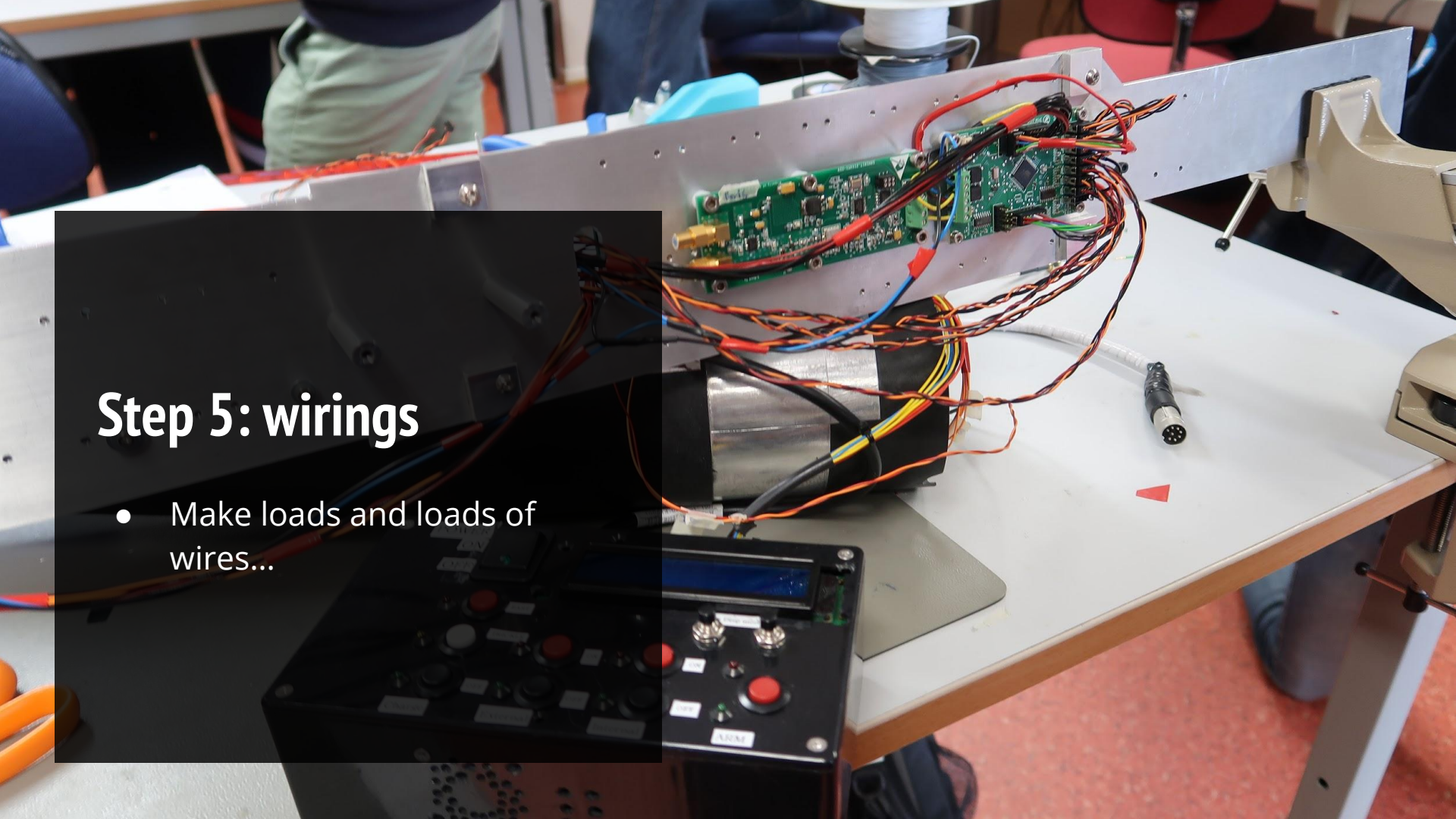
$V_{measured}=V_{in}*R_1/(R_1+R_2)$



Step 4: all the other sensors

- Qualification tests needed!
- No mounting on plate if without name
- Pressure sensor: Chris
- Light: Turboneger
- Magnetometer: Magneto
- Acceleration (X/Y): Alexandria
- Temperature Array: Arthur
- IMU: Colombus
- GPS: George



Step 5: wirings

- Make loads and loads of wires...

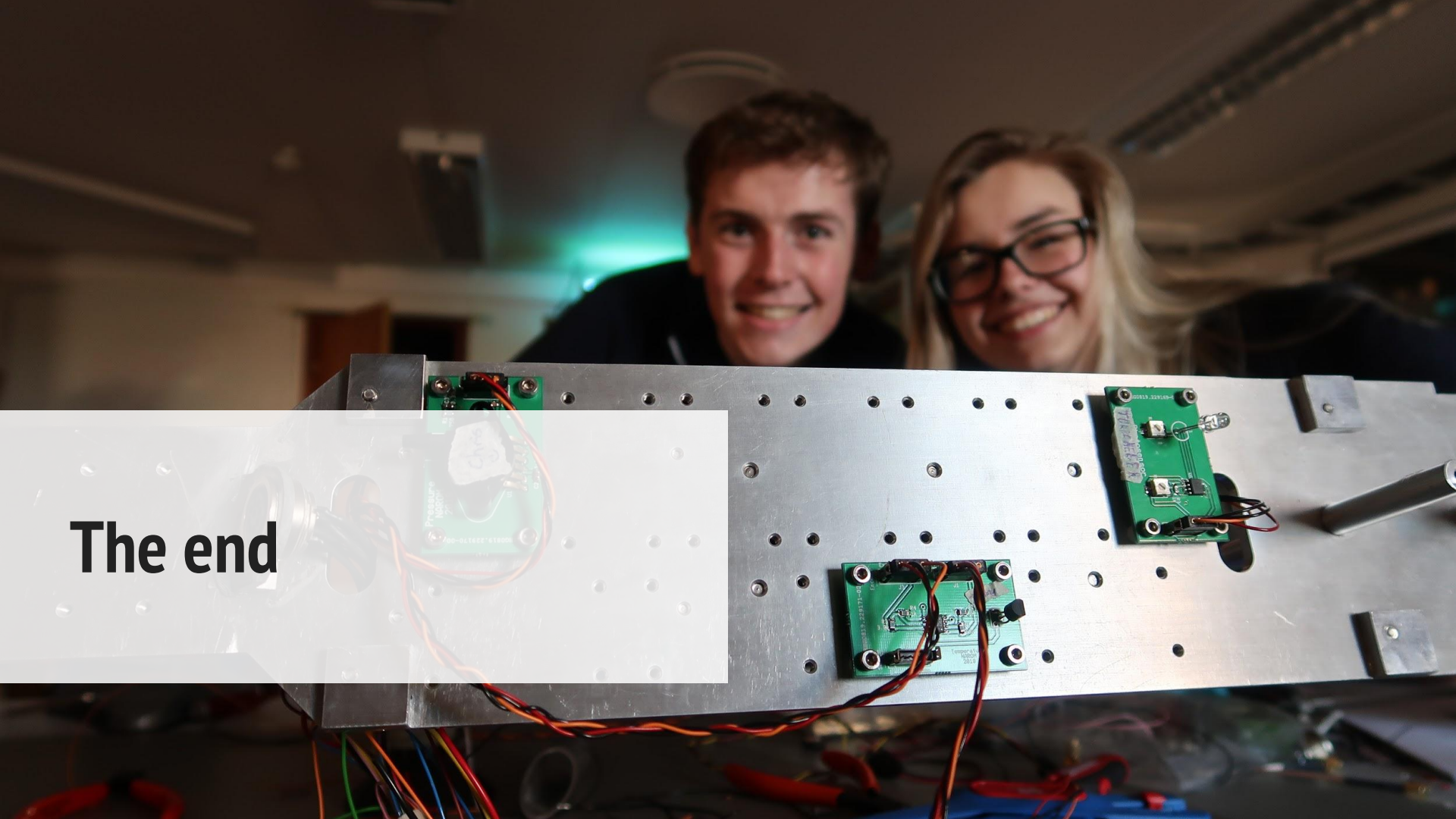
Step 6: charging and testing

- Don’t touch the metal!
- Slow charging during pre-flight
- Testing together with Telemetry

Step 7: tighten all the wires!

With tape and strings


Step 8: give it a
name and sign it!

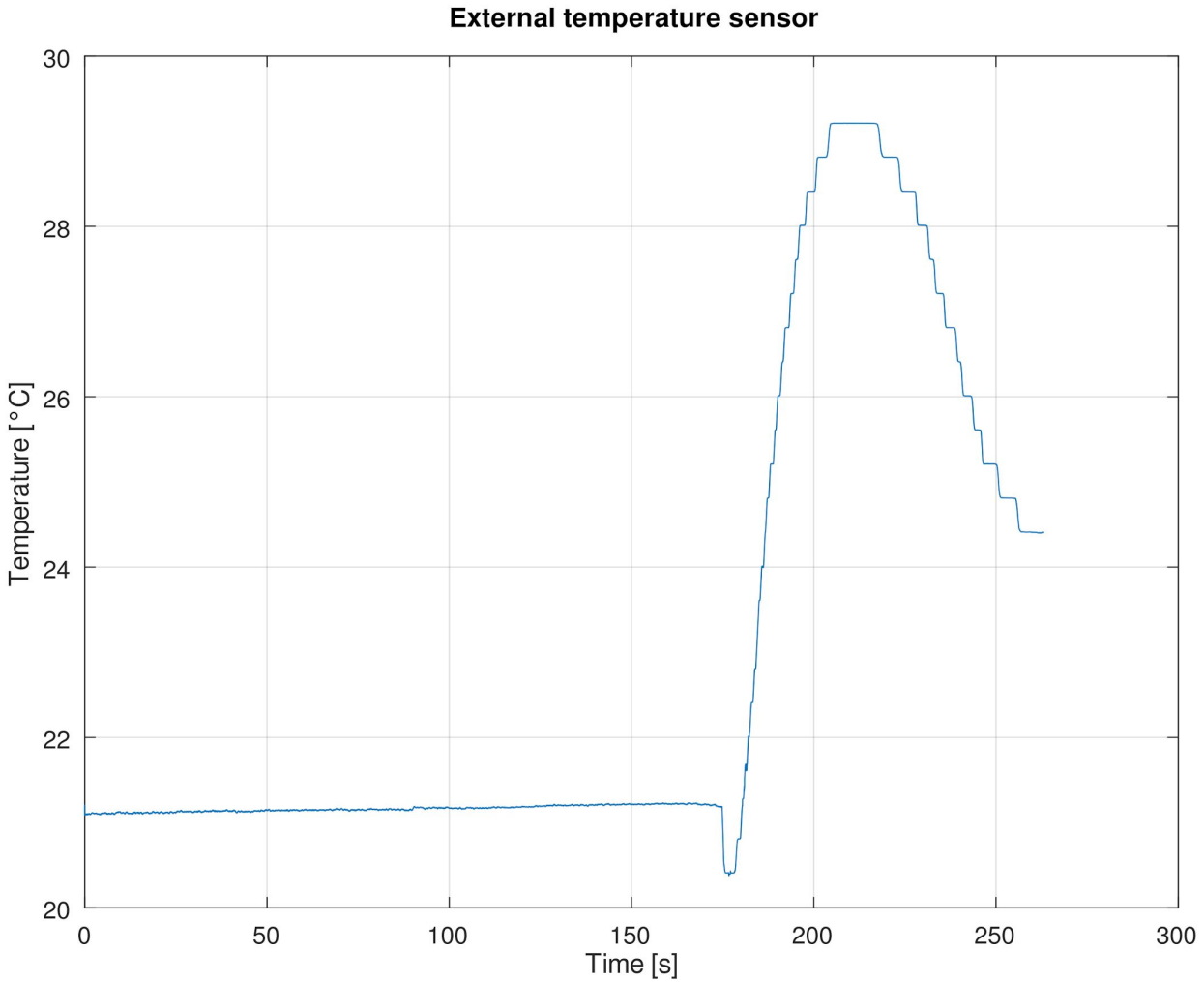


The end

The results of the Payload team!

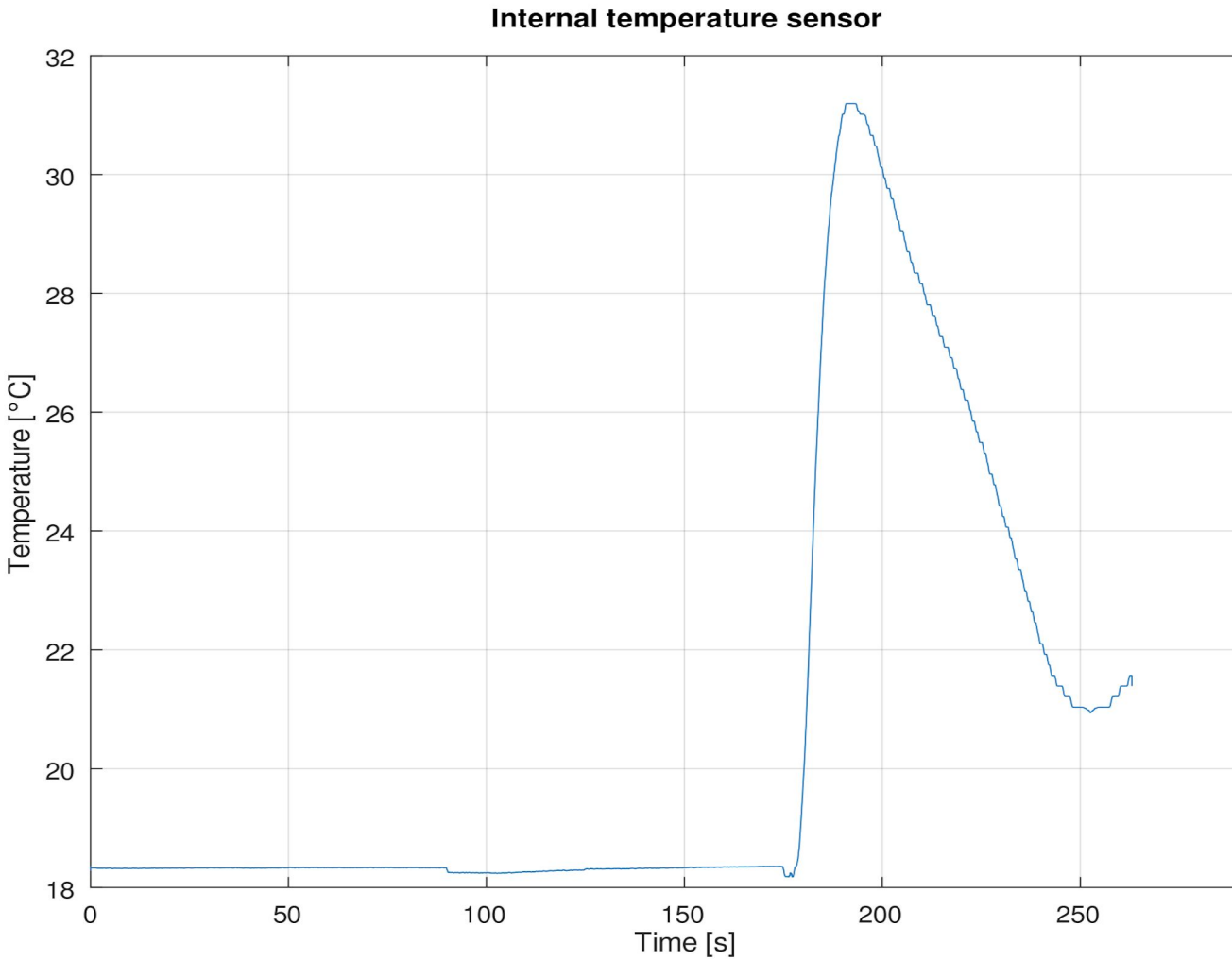
External temperature

- Temperature drop at launch time: possibly due to airflow when the engine starts
- Becomes higher later: possibly due to air pressure



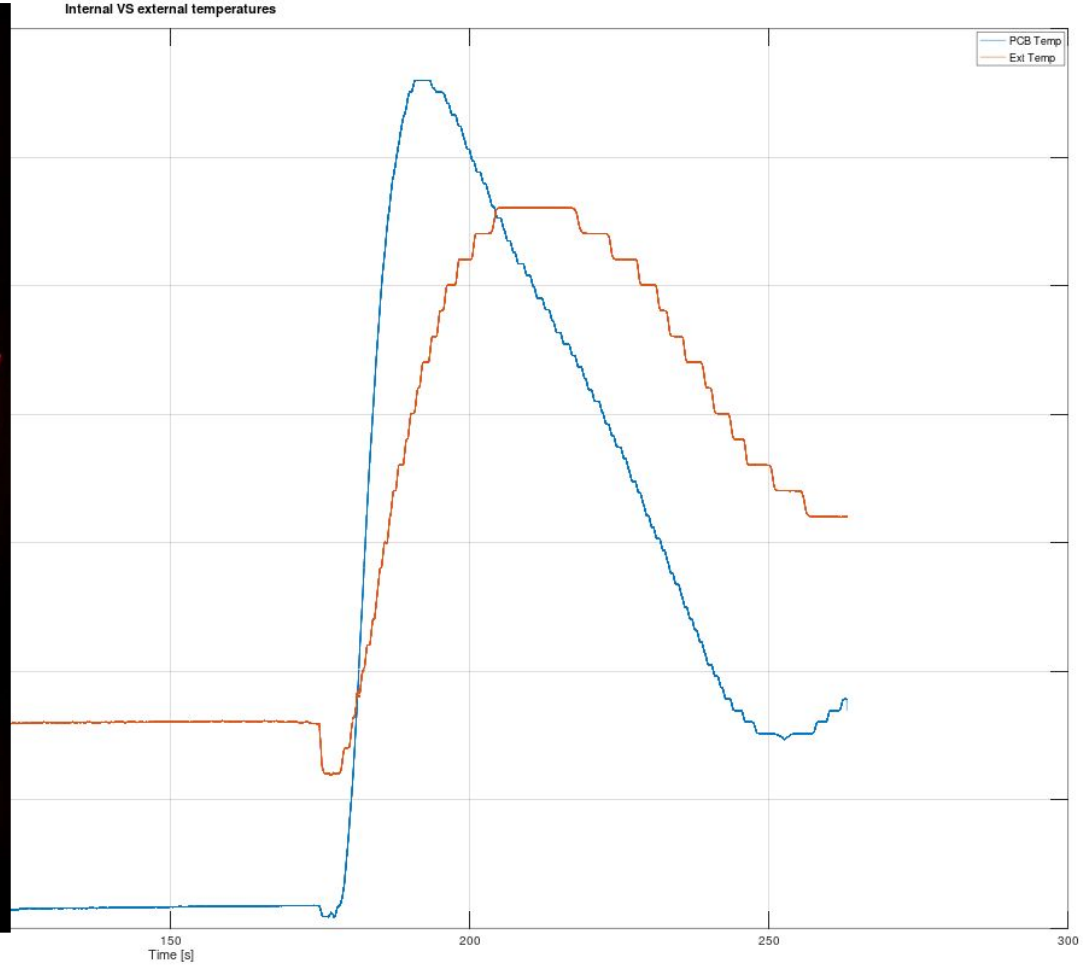
Internal temperature

Fast increase of temperature: maybe heat from engines?

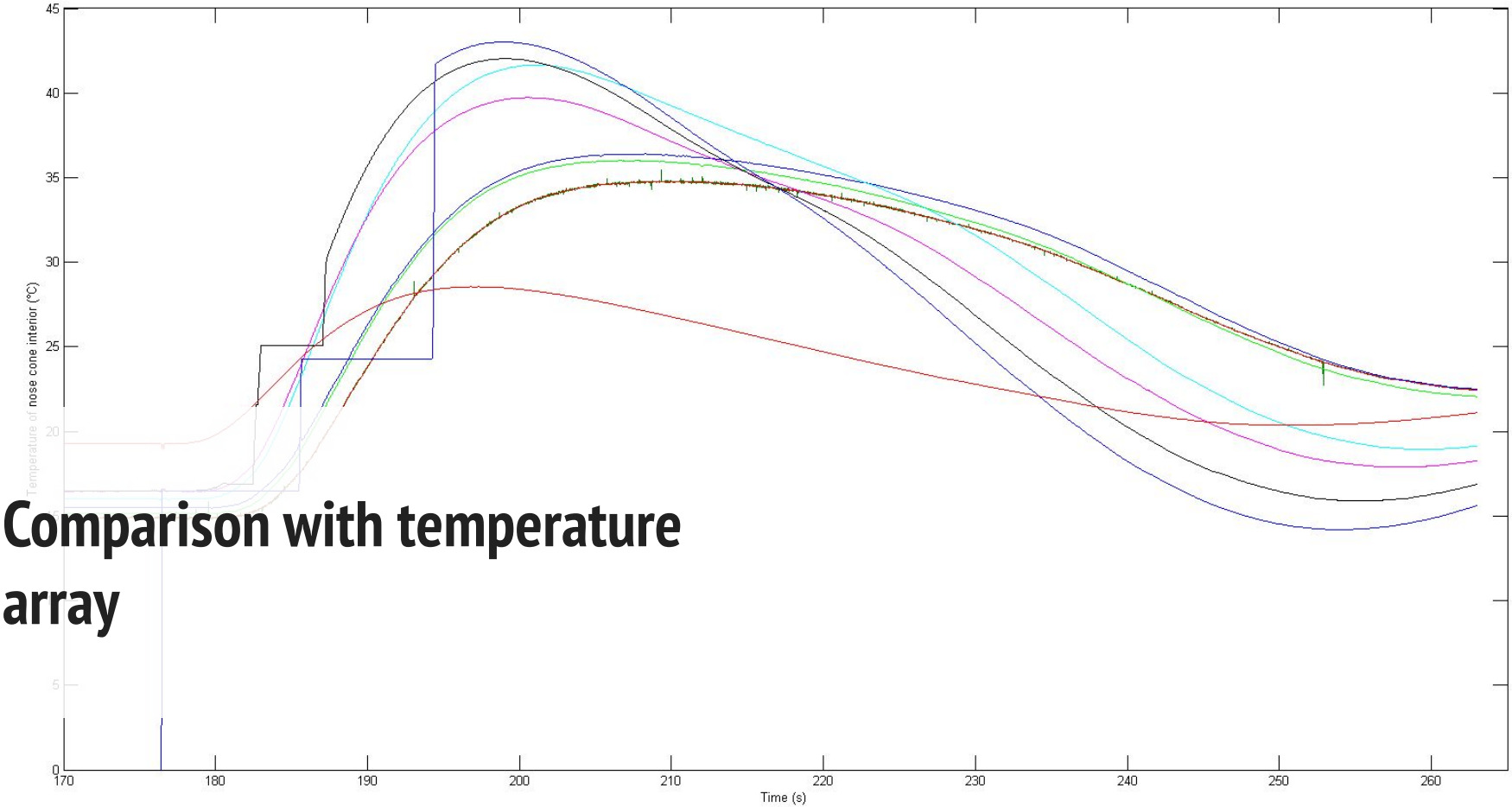


However, Chris doesn’t think so

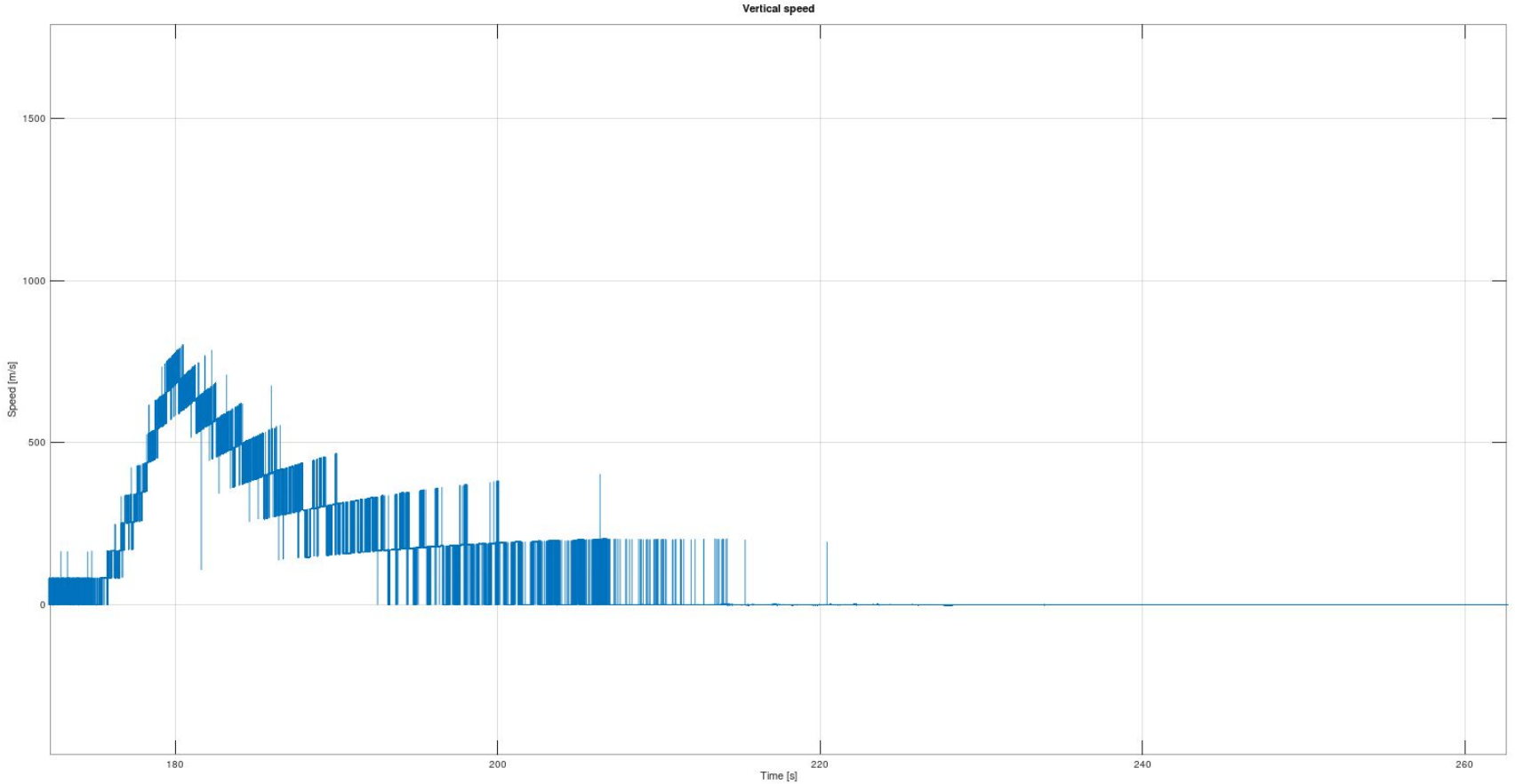
- He was upside down and didn’t measure the air pressure on the nose cone (which is in charge of the increase of temperature)


Internal VS external temperatures
PCB Temp
Ext Temp
0
50
100
150
200
250
300
Time [s]

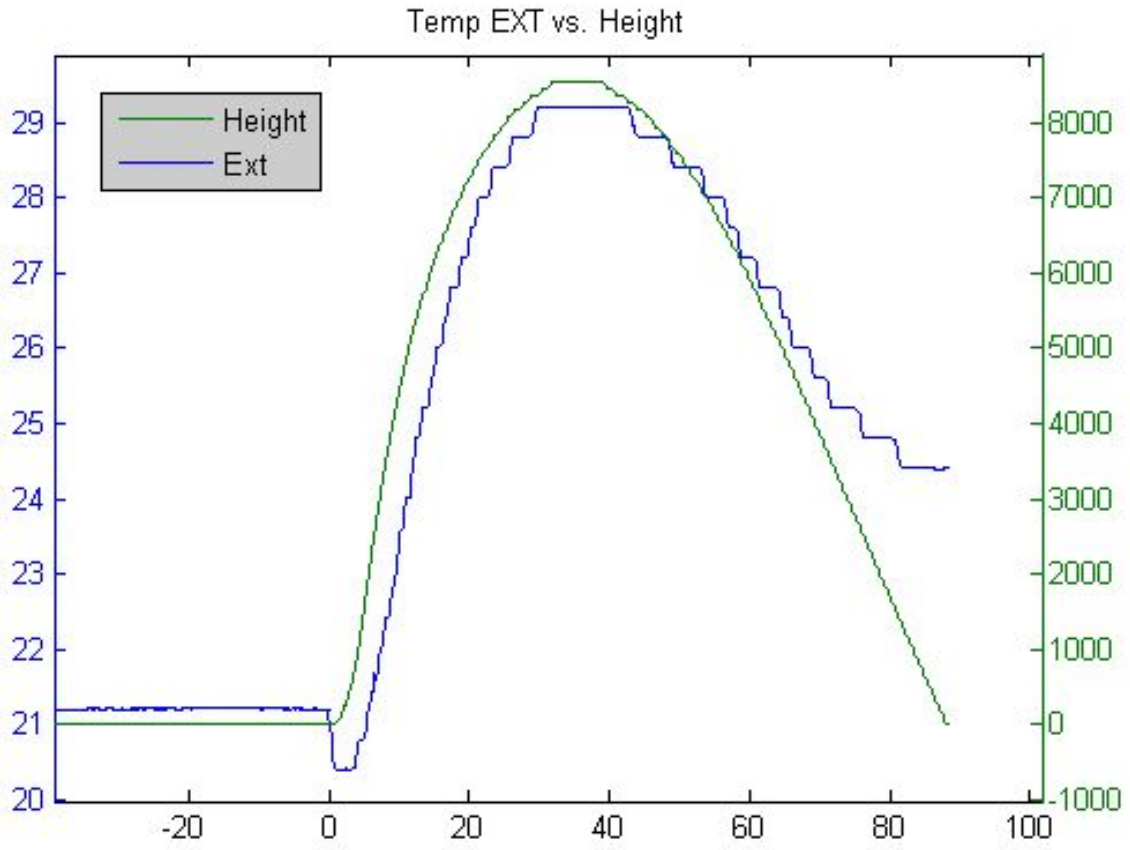
Comparison with temperature array



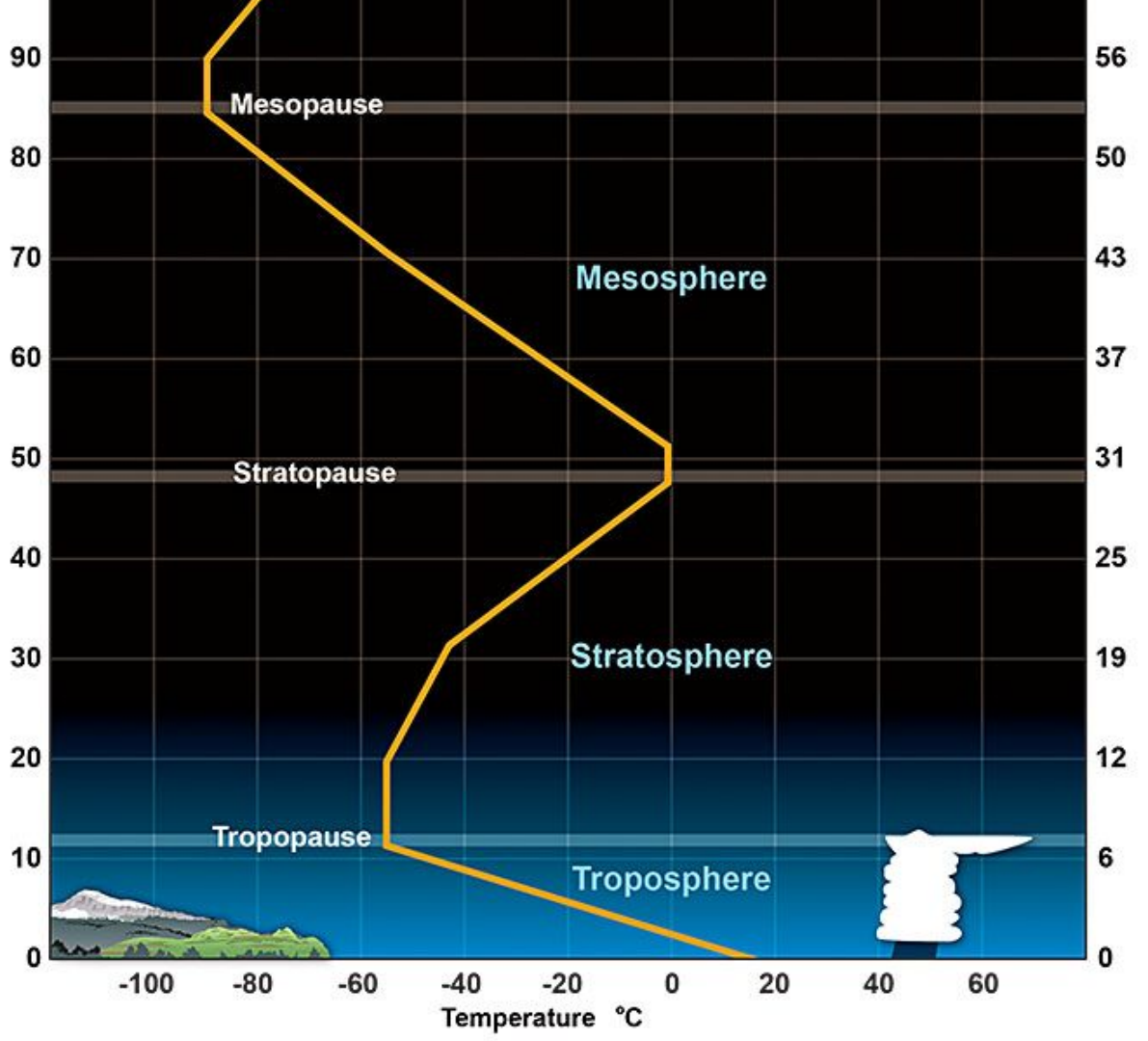
Comparison with the vertical speed



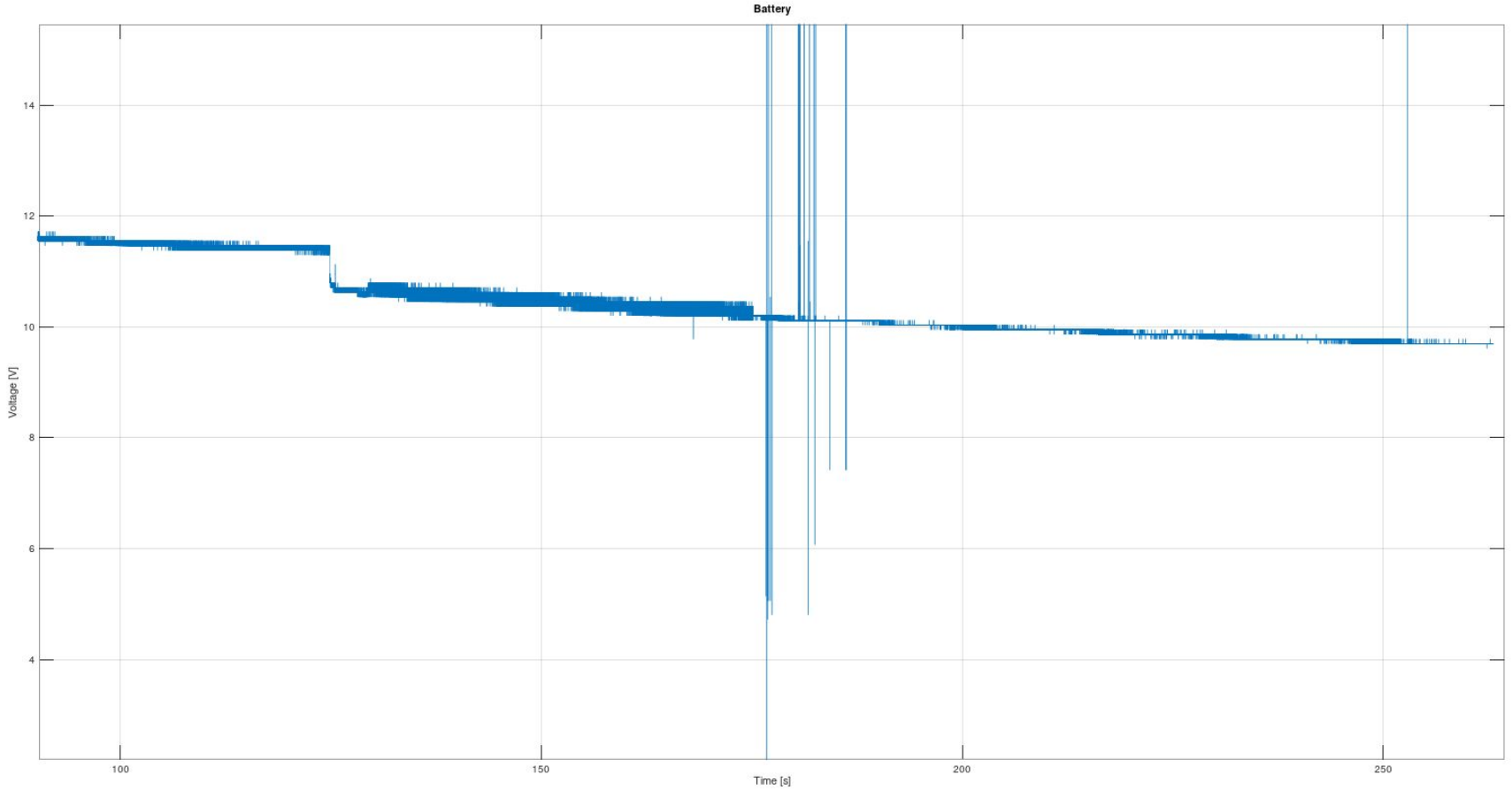
Comparison with height



Temperature in Troposphere



Battery voltage



The end!