<u>Lower part of the robot :</u>

Wheel (1) :
The wheels are made up of small rollers that allow smooth multidirectional movement. The robot can move forward and backward without needing to turn. This enables the robot to navigate within tight spaces.

VEX Smart Motor (3) :
The V5 DC smart motors have built-in sensors that measure rotation, rotational speed, current draw, power, temperature, and torque via encoders. The motor can use interchangeable gear cartridges to modify the maximum rotational speed of its shaft.

- **Specifications :** Speed : 100, 200, or 600 RPM (via cartridge) – Power : 11W – Stall Torque: 2.1 Nm (with 100 RPM cartridge)

V5 Robot Brain (4) :
The V5 Brain displays its own information as well as that of the robot. It allows execution of the user's program and control/monitoring of devices connected to the brain (sensors and motors). It features smart ports that automatically identify the type of connected device.
It provides real-time diagnostics viewable on a built-in touchscreen. It has extended memory (can store up to 8 user programs). Programs (in C++, Python, or block-based) can be uploaded wirelessly or via USB.

- **Specifications :** 128 MB RAM – 16 GB

VEX Battery (2) :
Works with the V5 Robot Brain and VEX motors. High current capacity and powerful output. The battery maximizes motor performance and can be used while charging.

- **Specifications :** 12.8 VDC – 1100 mAh – 14 Wh

V5 Robot Radio (6) :

The V5 Robot Radio allows your V5 Robot Brain to communicate with the V5 Controller and other V5 Robot Radios. All wireless communication to the V5 Robot Brain is done through the V5 Robot Radio, including driving with the V5 Controller, competition control, and wireless downloading of VEXcode projects.
The V5 Robot Radio works in combination with the V5 Controller and can provide either VEXnet 3.0 or Bluetooth wireless control and programming.

<u>Upper Part of the Robot :</u>

LCD Screen (5) **:**

- **Specifications :** 800x480 with capacitive touch screen for Raspberry Pi

A touchscreen display providing a user interface independent of the V5 Robot Brain.

Composed by a multitude of devices :

- First of all there are a battery and a LM2596S Voltage Step-Down Module.
    - This converter is composed by :
        1. Voltage Regulator
        2. Capacitors (100µF and 220µF)
        3. Potentiometer
        4. Power Diode
- **Specifications :** Input tension : 3.20 - 40 V   Output tension : 1.25 – 35 V.

The card have Input ports to take the battery tension and Output ports to transfert the charges in the screen. Furthemore with the potentiometer you can ajust the Output Tension that go in the screen for protect him.
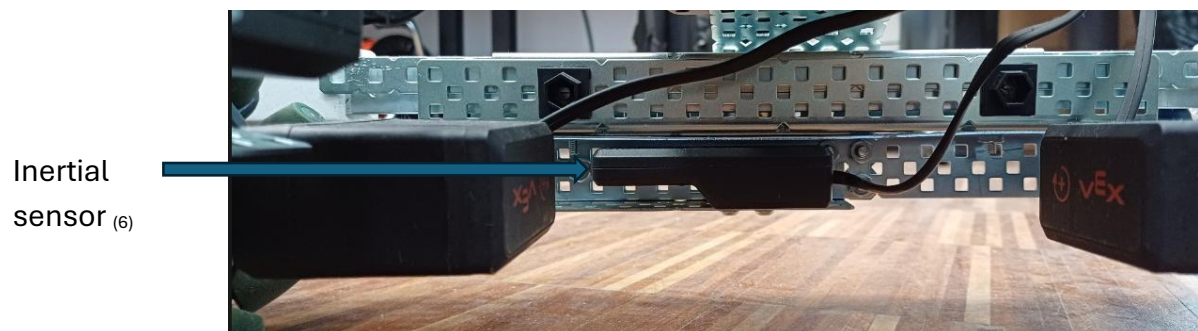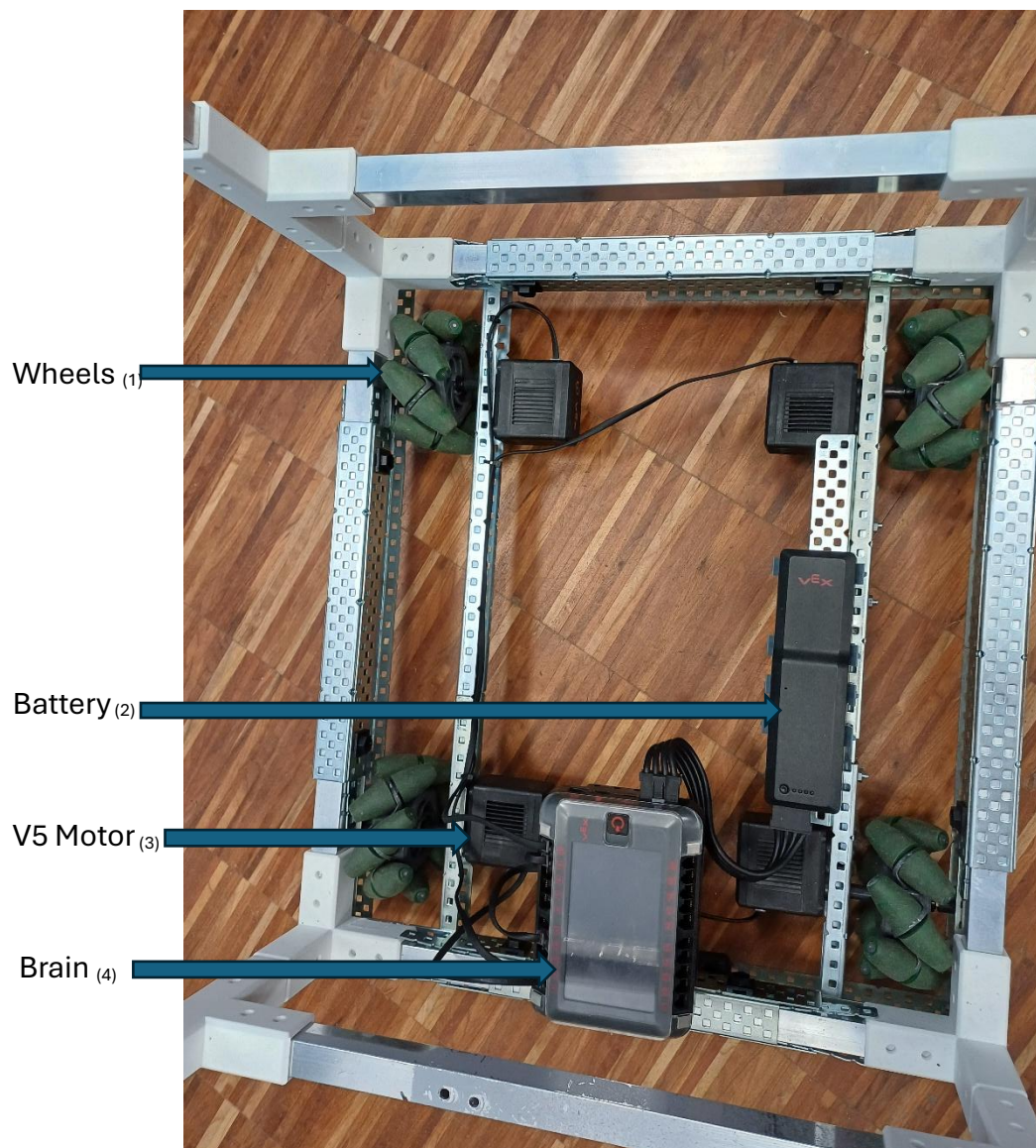
Battery Gens Ace G-Tech Soaring :
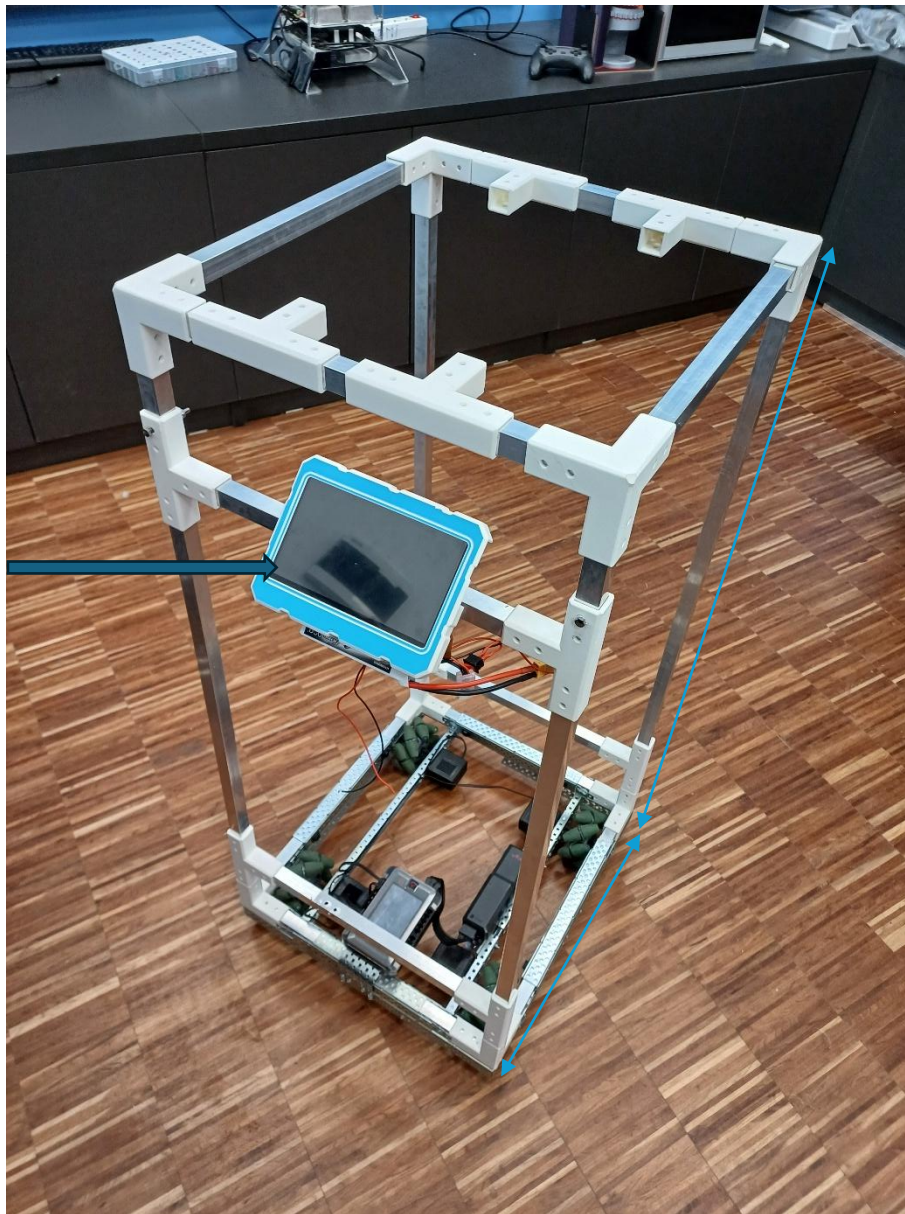
- **Specifications :** 2200 mAh - 7,4 V

Raspberry Pi 4b :
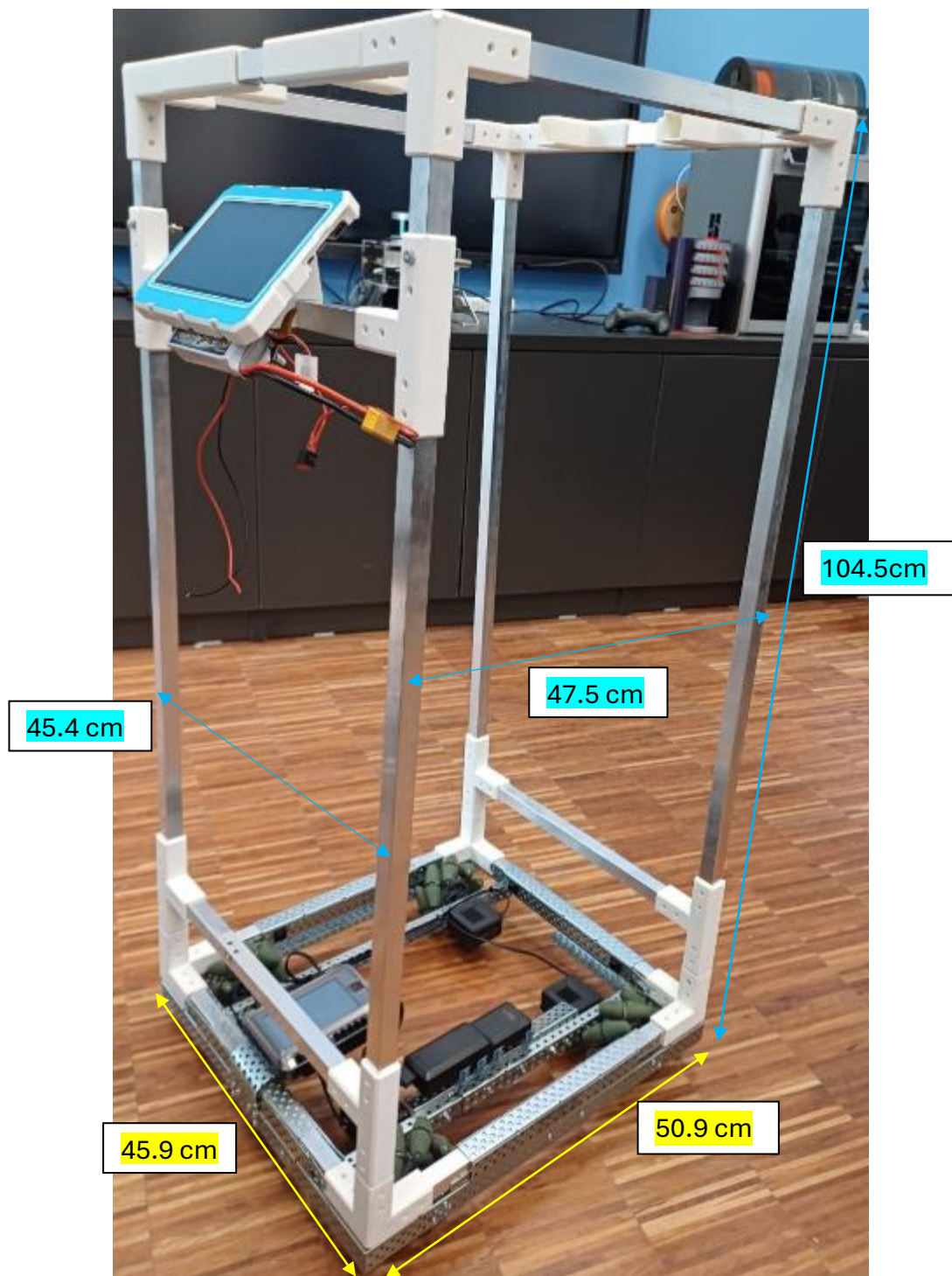
- **Specifications :** 4Gb RAM

Lower part of the robot :

Wheels (1)

Battery (2)

V5 Motor (3)

Brain (4)

Inertial sensor (6)

Screen (5)
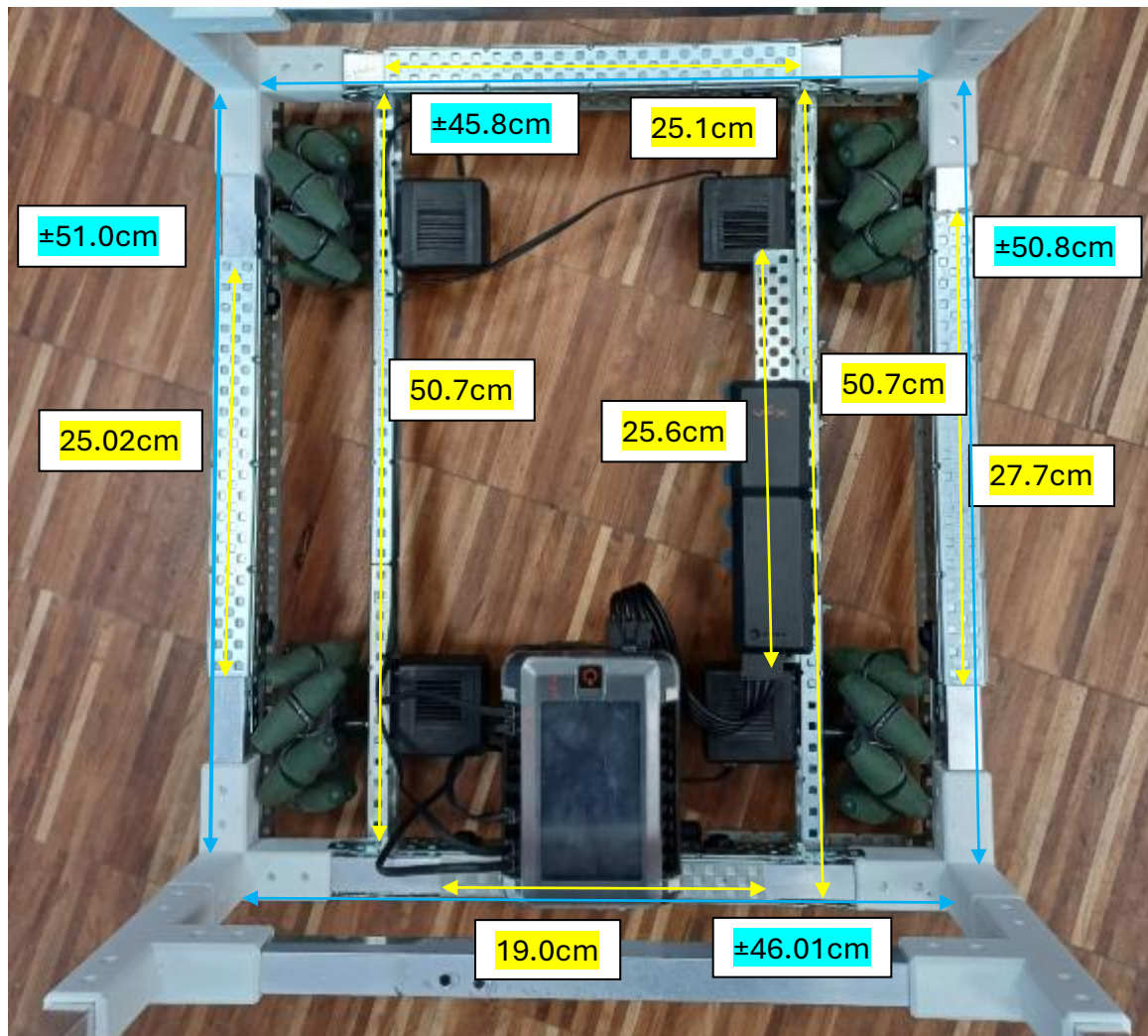
104.5cm

47.5 cm

45.4 cm

45.9 cm

50.9 cm

Legend :

Perfored Aluminium

Regular Aluminium

Measurement of the chassis seen from the top

Legend :

Perfored Aluminium

Regular Aluminium

± uncertainty due to the presence of plastic around the regular aluminium