Remote sensing robot Description

Lower part of the robot :

Wheel (1) :
The robot has a differential moving system with wheels omnis at the back, and rolle coster at the front for stability. This allows good handling without the need for motors on each wheel. The robot can move forward and backward without needing to turn. This enables the robot to navigate within tight spaces.

NEMA 17 Motor :

It's stepper motor with a 43.18 x 43.18 mm faceplate.

- **Specifications :** *1.5A to 1.8A current per phase* **–** *1 to 4 volts* **–** 44 *N·cm* **–** *1.8 or 0.9 degrees per step*.

Ultra sound sensor (HC-SR04) :

This sensor allows to measure the distance between it and an object located opposite.

- **Specifications :** 5 VDC **–** Detection range : 2 cm to 450 cm **–** Static current consumption: less than 2 mA

PCB card :

The PCB serves as a central platform for organizing, connecting and powering all components essential to the robot's operation and remote sensing.

Among the components present on this PCB we have :

- ESP 32
- Motors drivers
- Voltage Drop Regulator
- Battery

(We have also White JST-XH connectors and a switch.)

ESP 32 :

Brain of the robot : allows reading sensors, motor control and wireless communication.

Motors drivers :

The motor drivers allow to control the motors by providing the necessary power supply and allowing a control of the controls of the motor (direction of rotation and speed).

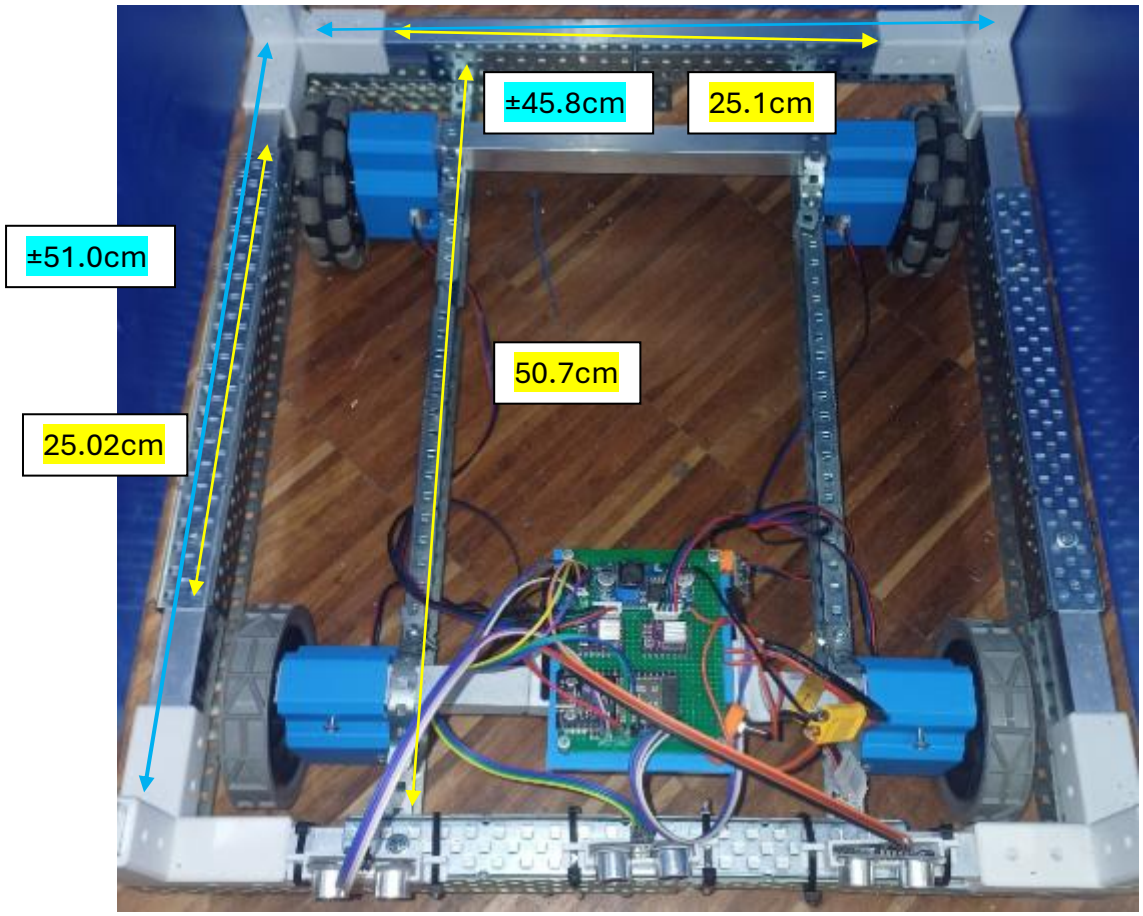
Voltage Drop Regulator :

The controller is crucial to properly power logic circuits (ESP32, HC-SR04, ...)

Battery Gens Ace G-Tech Soaring :

- **Specifications :** 2200 mAh - 7,4 V

Measurement of the chassis :



Legend :

Perfored Aluminium

Regular Aluminium

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