Technical Report for ***AMIGOS*** Team

Team Members:

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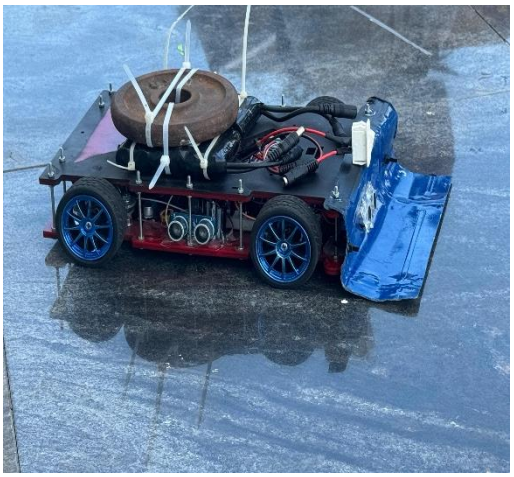
Final Render :



“Note the image is made by AI“ **“ The real robot “**

Introduction:

This report outlines the components needed for designing a robot adhering to the rules of the **ESA Sumo Robot** competition. The objective is to design a robot that is compact, efficient, and capable of completing the competition's challenges.

Key Components for the Robot:

1. Mechanical Components:

Chassis:

Dimensions: 27 × 37× 7 cm.

Material: Lightweight yet durable materials Ecleric

Design: Compact to fit within the specified dimensions and provide stability.

Structure (Frame):

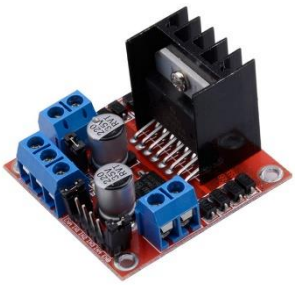
The frame should accommodate the robot's height limit of 7 cm while maintaining structural integrity.

Wheels:

wheels designed for stability and adequate traction on the arena’s surface.

2. Electronic Components:

Microcontroller:



L298 Motor Driver Module

A compact and efficient controller **Arduino Uno R3 CH340**

Arduino Uno R3 CH340

Sensors:

Infrared Sensors: to detecting the end of the track.

Infrared IR Obstacle Avoidance Sensor 3 Pin.

Ultrasonic Sensor Module: To search for the enemy on the track.

Ultrasonic Sensor Module HY-SRF05

Battery and power:

A lightweight 12V DC 2 battery to power the robot

12V 3S2P Li Rechargable Battery + BMS (3600mAh)

DC-DC Step Down Module :

XL4015 DC-DC Step Down Module 5A with CV/CC Control

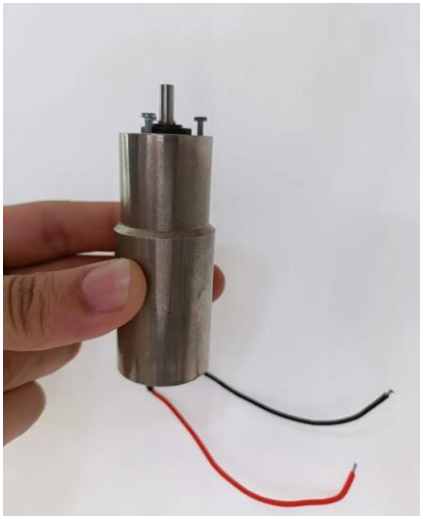
Wiring and Connectors:

Short and organized wiring to reduce clutter and fit within the compact frame.

3. Motors:

DC Motors:

Compact motors to drive the wheels and provide adequate torque for movement.



24V-170RPM 12kg.cm

The final code : we depend on strategy is called random reach.

Code: https://github.com/mustafalabib1/sumo-robot-