Engineering Journal:

Xpirit Robotics

Future Engineers Category

WRO 2024 Argentina

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Country: Argentina

Mobility Management

In accordance with the competition regulations, our robot utilizes a single DC motor and one servo motor. To enable the steering system, we have incorporated a custom 3D-printed component that allows both front wheels to turn from left to right. This steering system is pretty simple, But is useful. Regarding the DC motor, we have attached two wheels directly to it, making the robot the most compact and light possible. The DC motor allows the backward and forward movement.

Power and Sense Management

We use a 7V 2000mAh Li-Po battery to power the logic part and the dc motors of our robot. Li-Po batteries are lightweight and have a high energy density, making them ideal for our needs . For sensors, we have three CJVL53L0XV2 sensors for accurate and fast wall distance detection. These sensors measure up to 2 meters with millimeter-level accuracy. For color detection, we use an ESP32 camera . This board integrates image detection and image processing using AI, making it perfect for avoiding obstacles.

Components We use:

| Description | We use | We intend to use | Quantity |
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Obstacle Management

For obstacles avoiding and color detection we use a ESP32 Cam with an Machine Learning model using Edge Impulse