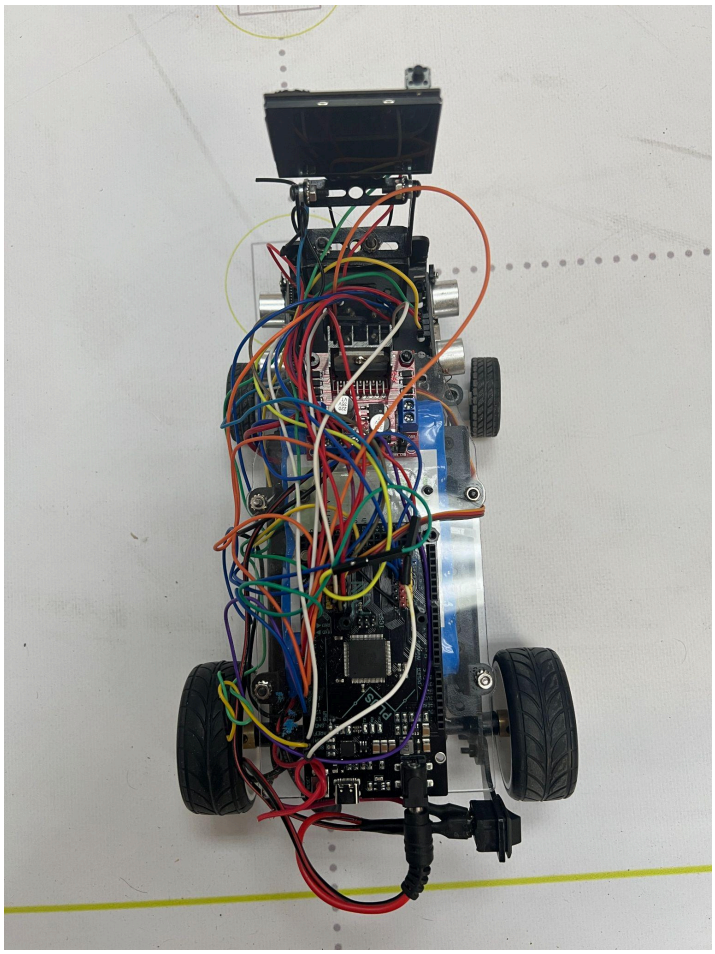
SAUDI EAGLES

# Report About Our Robot



## Saudi Eagles

# Description：

The Saudi Eagles have had a singular objective since their establishment. merging mechanical, electrical, cooperative, and artificial intelligence capabilities into a single vehicle. We worked hard, persevered, and ultimately chose the appropriate components for our self-driving vehicle. Through this process, we were able to maximize its autonomy and efficiency. The most difficult task is undoubtedly figuring out how to make all of these components work smoothly without altering the dynamics. Choosing the appropriate parts is an extremely difficult phase since we want our car to be the greatest that it can be.

The car in question was built with an aluminum body that is lightweight, a 12V rechargeable lithium battery that can be used again, an Arduino-compatible board, a separate motor drive control, three ultrasonic sensors that measure distance in three different directions, a color sensor that detects colors in the mattress, an artificial intelligence camera that can recognize objects and colors, an interactive screen that displays the camera view, a servo motor that steers the robot to control its direction, a differential mechanism that transfers power from one motor to two wheels, wide rubber wheels, and motors operating at 300 rpm.

We wrote our code with extreme caution, carefully reviewing each and every line to ensure that there were no errors or software bugs. By developing two codes, we ensured that every task is decided by our previous design and not by chance.

# Ultrasonic sensor US - 100 :

An ultrasonic sensor is a device that measures the separation between an item, like walls or pillars, using ultrasonic sound waves. Using a transducer, an ultrasonic sensor sends and receives ultrasonic pulses to gauge an object's proximity. We used three left, right, and front ultrasonic.

# RNAI Arduino Mega 2560 :

A microcontroller board based on the ATmega2560 is called the Arduino Mega 2560. There are sixteen analog inputs, sixteen digital input/output pins (15 of which can be utilized as PWM outputs), four hardware serial ports, sixteen USB ports, an ICSP header, a power jack, and a reset button.

# Servo MG995 :

Several radio-controlled vehicles, including cars, helicopters, and aircraft, use the high-velocity MG995 Metal Gear Servo Motor. It can rotate 180 degrees, or 60 degrees in each direction. Delivered are 10 kg/cm at 4.8 V and 12 kg/cm at 6 V. PWM signals are processed and received by this digital servo motor more rapidly and effectively.

# DC Motor 12V 1200 RPM :

The most prevalent kind of motors are direct current (DC) motors. One positive lead and one negative lead are commonly found in DC motors. The motor will start if you connect these two lines straight to a battery. The motor will turn the other way if the leads are switched.

# The L298N Motor Driver :

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# Batteries :

We used (6) lithium 12-volt batteries

# HuskyLens AI Camera :

A simple-to-use AI camera is HuskyLens. With a single click, it can be trained to identify objects, faces, and colors. As it learns more, its intellect increases. HuskyLens can detect faces at a rate of thirty frames per second because to the application of cutting-edge AI technology. With HuskyLens, you can connect to Arduino, Raspberry Pi, LattePanda, or micro:bit and create very creative projects without worrying about complex algorithms. HuskyLens aims to be the most straightforward AI camera. Numerous image processing methods are already included. You may switch between the methods by pressing buttons, and it can recognize and pick up new objects from photos. HuskyLens also has a 2.0-inch display, so you get exactly what you see!

# Future Engineers Rules :

https://www.wrosaudi.com/public/uploads/competions/files/competion_file_en_1095060983.pdf

# Our Socials :

https://linktr.ee/saudieagles24?utm_source=linktree_profile_share&ltsid=2ff79013-0f0b-4369-9074-603b9cb6cc6b

# YouTube Channel Link :

https://www.youtube.com/@saudieagles24

# Team Members :

Shahad Aldossary
Sara Alkuzayim

# Team Coach :

Malak Alsalem

# About Us :

We’re a team hopeful to represent our country in the nationals