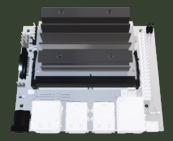
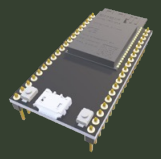
# Components:

NVIDIA Jeston Nano



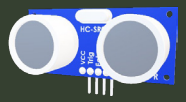
Astra Pro Depth Camera

ESP32 MCU



7 inch LCD Screen

ESP32 MCU



DC Motor

Servo Motor

# Software Tools:

- C++.
- Python.
- OpenCV.
- TensorRT.
- YOLOv5.
- NumPy.
- CUDA.
- Linux.

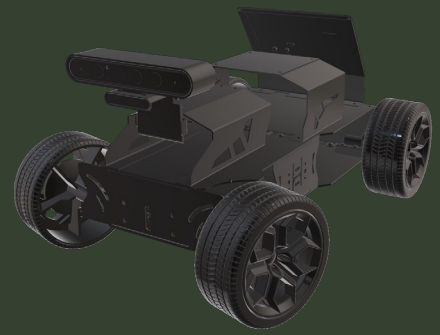


# Conclusion:

Our ADAS project significantly enhances automotive safety and driving experience by integrating technologies such as blind-spot detection, lane departure warning, traffic sign recognition, adaptive cruise control, and bump detection. Through extensive research, development, and testing, we have addressed key safety challenges and established a foundation for future advancements in driver assistance. This project demonstrates the transformative potential of technology to improve road safety, efficiency, and driving enjoyment globally.

for more information





# Advanced Driver Assistance Systems (ADAS)


## Team Members

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## Sponsor

The Academy of Scientific Research & Technology (ASRT)

# Project Objective:

ADAS can work an important role in many factors to reduce the number of crashes cases as possible using the power of sensors and Machine learning algorithms to analyze the environment around the vehicle and take the required action in the suitable time , these factors are:

1. Blind Spot Detection System.
2. Lane Departure.
3. Adaptive Cruise Control.
4. Bump Detection.
5. Traffic Sign Recognition.



# Features:

## 1. Blind Spot Detection (BSD):

BSD technology helps drivers identify vehicles in their blind spots and alerts them to avoid dangerous maneuvers.

## 2. Lane Departure Warning (LDW):

LDW alerts drivers when their vehicle unintentionally drifts out of their lane.

## 3. Adaptive Cruise Control (ACC):

ACC that adjusts the vehicle's speed automatically to maintain a safe distance from the vehicle ahead.



## 4. Bump Detection (BD):

BD systems are equipped to detect and alert drivers of speed bumps and other road irregularities.

## 5. Traffic sign Recognition (TSR):

TSR can interpret and display traffic signs to keep drivers informed about speed limits, no-entry signs, and more.

# Project Application:

- The companies VALEO, Magneti Marelli GmbH, Vector, SEITech Solutions, and Hella specialize in developing automotive software and providing modern and smart technological systems for vehicles. Additionally, transportation and infrastructure authorities are relevant stakeholders in this field.