

ALGIERS INTERNATIONAL FAIR 20-25 JUNE 2023

Engineering & Innovation National Challenge

# AI POWERED VEHICLE LICENSE PLATE DETECTION SYSTEM



**UDL SBA**

24 JUNE 2023



TEAM UDL SBA



# About us

The spirited team from the Welaya of Sidi Bel Abbes and the esteemed University of Djilali Liabes eagerly embarks on an exhilarating journey to Algeria, where they are set to compete in an extraordinary engineering and robotics challenge. Armed with their exceptional knowledge, technical prowess, and unwavering determination, this group of bright minds represents the pinnacle of innovation and ingenuity.

# Our Team



**Ahmed ALAMI**  
*Coach*



**Abdelmadjid MEDDOUDI**  
*Student*



**Walid OMARI**  
*Student*



**Ouerrad HALOUCHE**  
*Student*



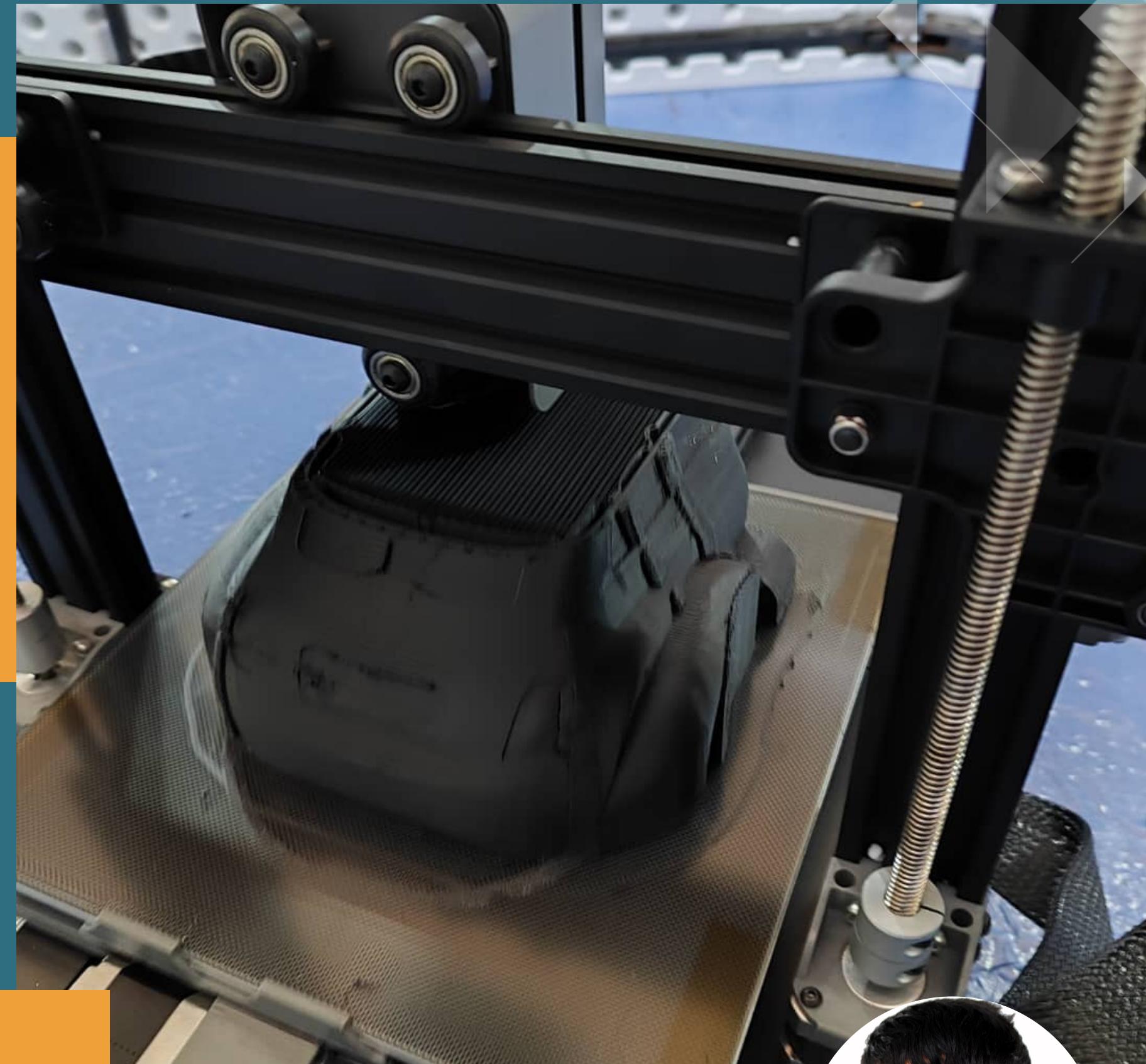
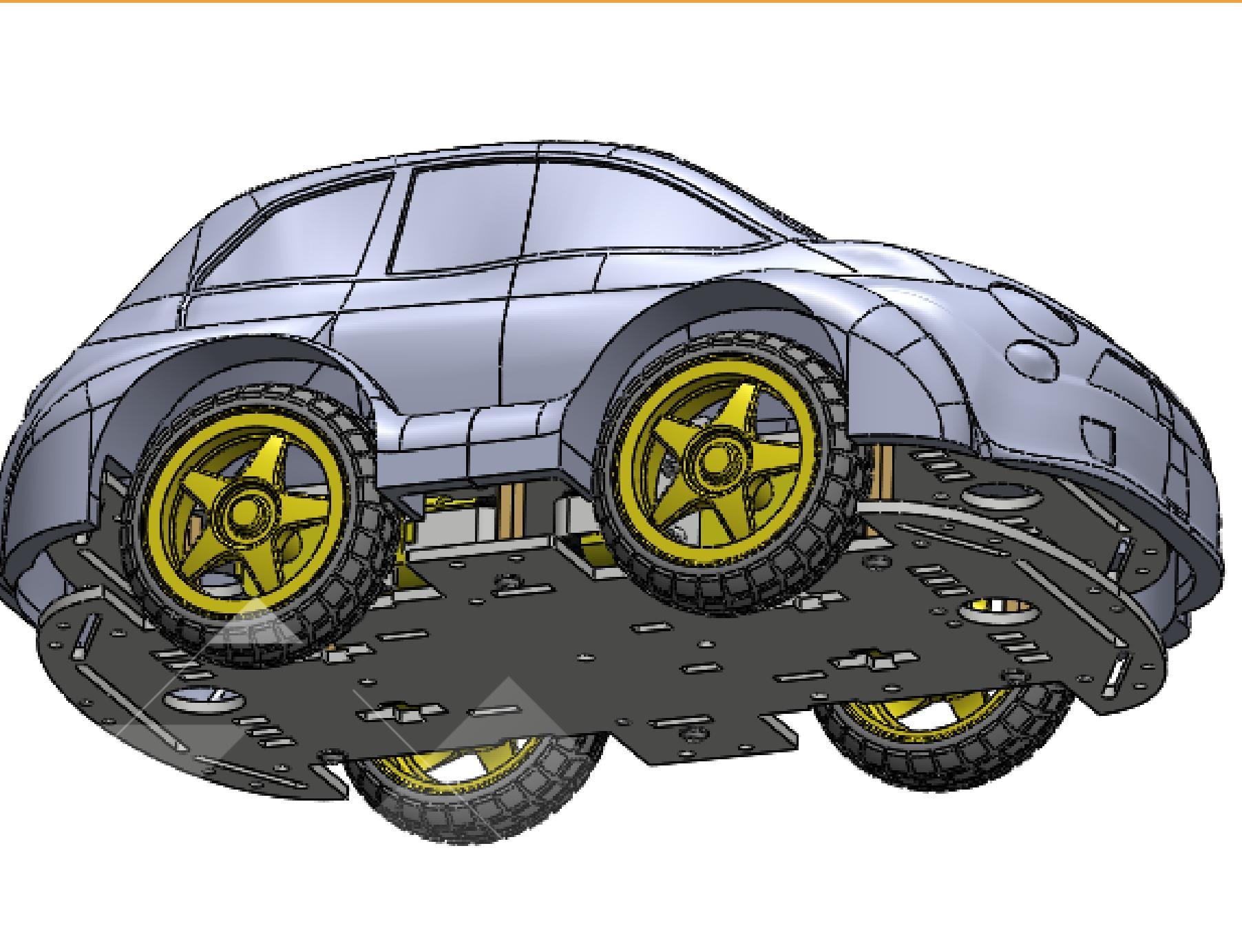
**Jilali SAIM**  
*Student*



**Hisham HADJAZI**  
*Student*



# 3D Modeling



by Walid OMARI

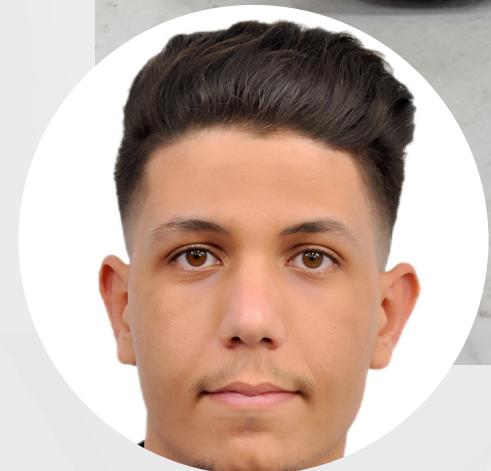




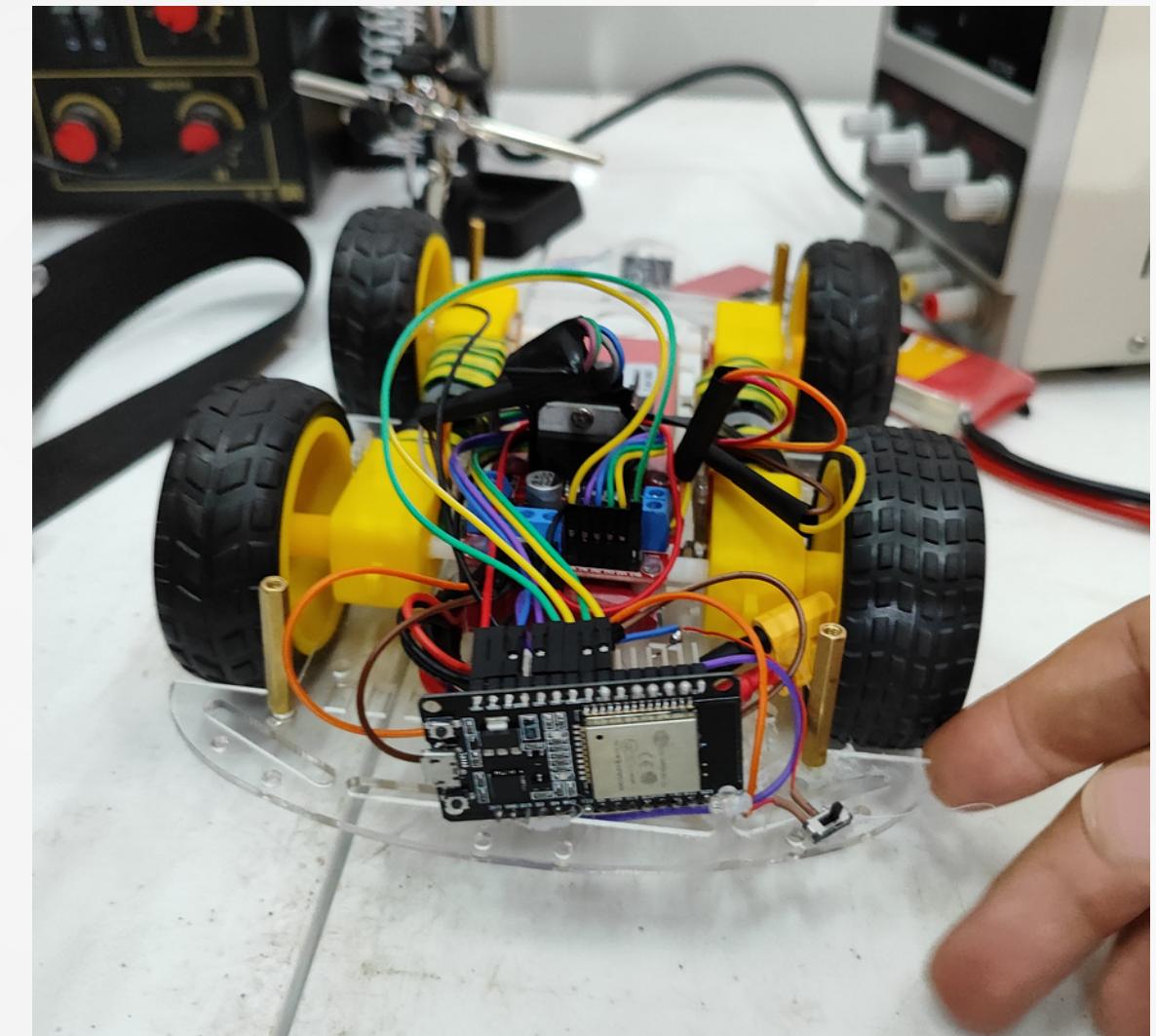
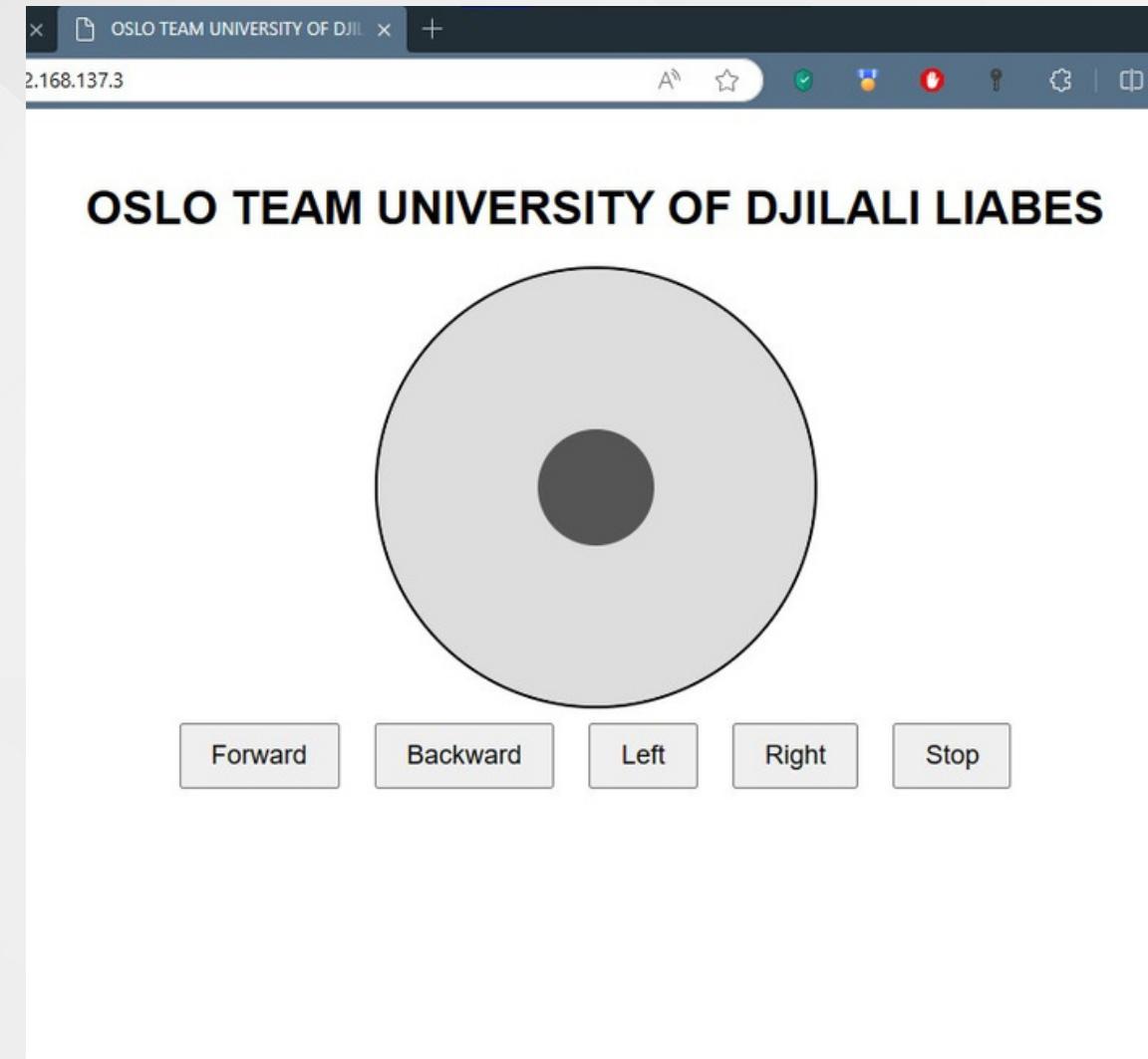
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# Electronics



by Ouerrad HALOUCHE

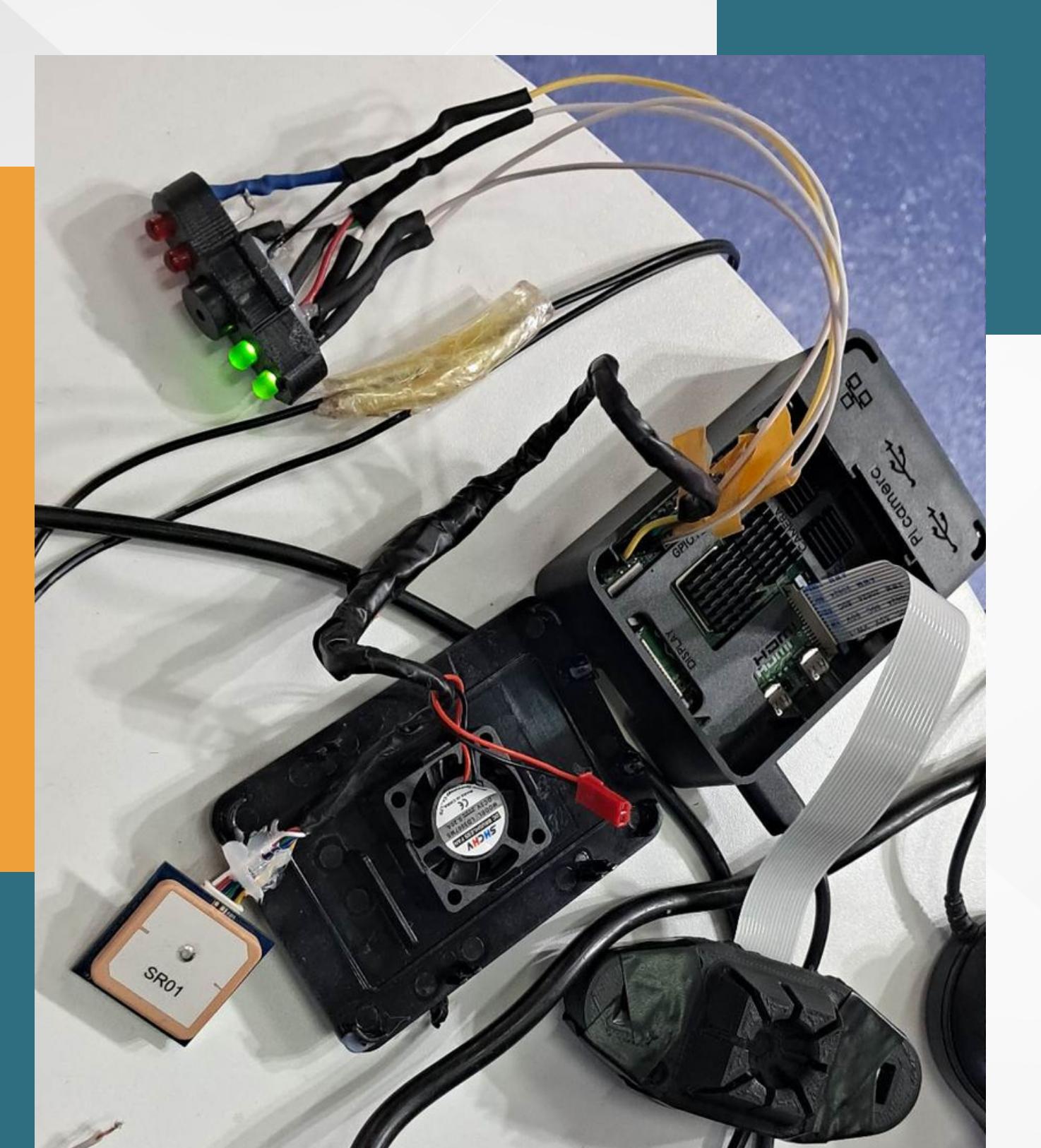




# AI Detection, with Camera, GPS tracking in Raspberry PI

Artificial intelligence (AI) is the basis for mimicking human intelligence processes through the creation and application of algorithms built into a dynamic computing environment. Stated simply, AI is trying to make computers think and act like humans.

by Abdelmadjid MEDDOUDI





# Data science and AI

```
# Lecture de l'image
image = cv2.imread("/home/rasp/Desktop/cm/recieved_image.jpeg")

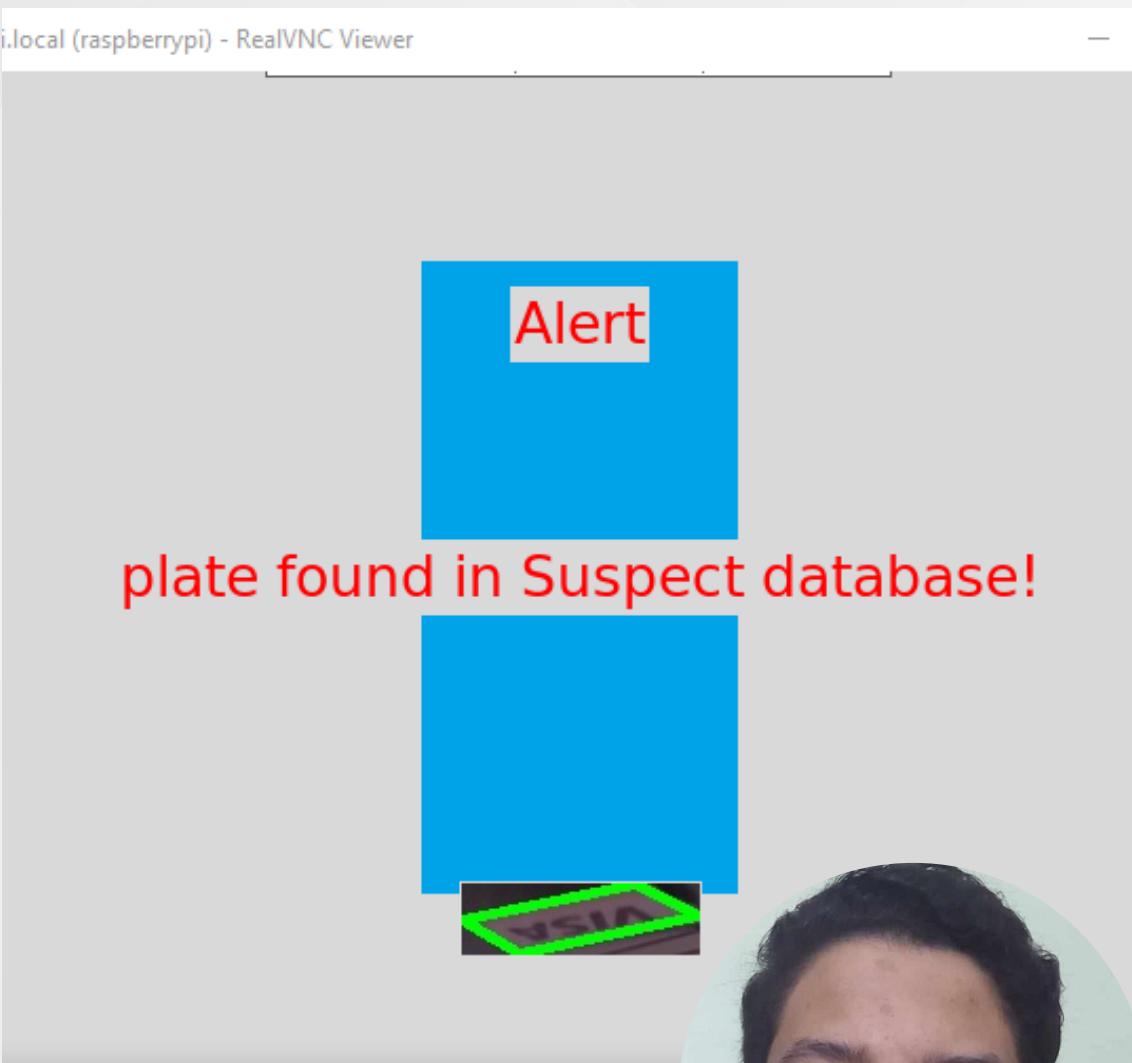
# Redimensionnement de l'image pour une meilleure performance
image = cv2.resize(image,(500,500), interpolation = cv2.INTER_AREA)

# Conversion de l'image en niveau de gris
grayscale = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)

# Filtrage de l'image pour réduire le bruit
blurred = cv2.GaussianBlur(grayscale, (5, 5), 0)

# Détection de contours en utilisant Canny
edged = cv2.Canny(blurred, 30, 150)

# Recherche des contours de l'image
contours, _ = cv2.findContours(edged.copy(), cv2.RETR_EXTERNAL, cv2.CHAIN_APPROX_SIMPLE)
```



by Abdelmadjid  
MEDDOUDI Jilali SAIM





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# Web Development



by Hisham HADJAZI

The screenshot shows a login interface for a police application. At the top, there are input fields for 'User' and 'Password' with 'LOGIN' and 'RESET' buttons. Below the login form, there is a row of logos for various organizations: STREAM, OK (Ouedkniss), A-VENTURE, ANEP (communication et signalétique), UFI Approved Event, SAFEX, FIA (Fédération Internationale de l'Automobile), and UDL (Université des Sciences et de la Technologie d'Oran). The bottom of the screen shows a circular photo of a person and some system status icons.

The screenshot shows a vehicle tracking application. It displays a close-up of a car's front end with the license plate '563983123 22'. To the right, there is a map of Algiers with several location markers. Below the map, there are buttons for 'BUZZER' and 'ALERT LIGHT'. At the bottom, there is a navigation bar with icons for home, search, and other functions. The bottom of the screen shows a circular photo of a person and some system status icons.

# Final Result





# Cost of materials for a production prototype

Prices are approximated using Aliexpress and other sources on 24 Jun 2023.

- NVIDIA Jetson Nano: 14000DA
- Development Card: 1400DA
- Motor Driver Shield: 1400DA
- DC Motors (4): 1400DA each
- Motor Wheels (4): 700DA each
- Motor Encoders (4): 700DA each
- Ultrasonic Sensors (4): 280DA each
- Infrared (IR) Sensors (2): 140DA each
- LIDAR Sensor : 14000DA
- Camera Module: 1400DA
- Battery: 2800DA
- Breadboard, and Connectors: 180DA
- Chassis and 3D Printing: 4000DA
- (screws, nuts, bolts, etc.): 160DA
- Installation cost robot: 350000DA

**Total : 50260DA**



**THANK YOU  
ALGIERS FOR THE  
WORM WELCOME  
WE LOVE YOU =)**