



# CAR HAND

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# Outline:

- Motivation
- What is Car Hand
- How it works
- Technical choices
- Challenges
- Future work

# Motivations:

- Controlling cars limits movement.
- User has two choices:
  - Sacrifice Full control in the sake of free movement
  - Get full control but loose free movement
- Traditional solutions don't give satisfying controls.

# Car Hand

- Is a smart glove.
- Provides remote control capabilities and features.
  - Control the car using simple and traditional hand gestures.
  - Ease of clarity and understanding.
- Fun and more interactive presentation experience

# How Does it work ...

- Hand Gestures
  - Just moving your whole hand, you can control the car.
  - Hand gestures and direction are translated into commands to be executed.

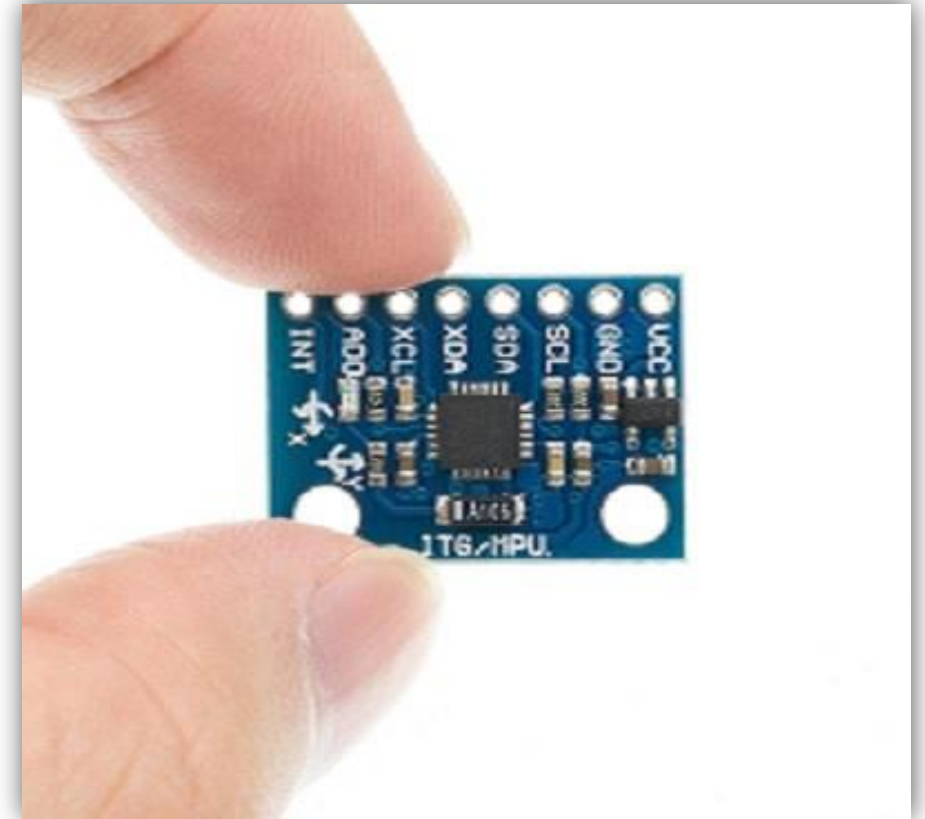
# Technical choices

- Hardware:
  - Reading hand gestures :
    - Hand motion

# Reading hand gestures

## 1. Accelerometer:

- Placed on top of glove
- Reads 3-axis motion angles of the hand
- Angles reading converted by Arduino code to commands via ESP32



# Reading hand gestures

## 2. ESP32-WROOM:

- Main brain of the project
- Installed on top of glove
- Provides built-in Bluetooth
- Handles connection between glove and car by built-in Bluetooth





# Car Part

## 1. Ultrasonic

Instrument that measures the distance to an object using ultrasonic sound waves.



## 2. L293D (Motor Driver)

Dual-channel H-Bridge *motor driver* capable of driving a pair of DC motors or one stepper motor.



## 3. BO Motor (DC Motors)

light weight DC geared *motor* which gives good torque and rpm at lower voltages.



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## 4. ESP32-WROOM

Used as a car microcontroller



# Technical choices

- Why Bluetooth?
- Built-in Bluetooth consumes low power compared to Wi-Fi
- Software:
  - Arduino IDE
    - Processes and exchanges data between glove and car.

# Challenges

- Coming up with consistent design.
- Limited movement (limited space).
- lack of pieces.
- Some parts are not compatible with each other.

# Future work

- Wi-Fi Module Development.
- Improved glove capabilities on the car.
- Rotation development process.

Thanks 😊