

**“Step by Step”**



# **Robotics**

## **Smart Car Robot**

# Robotics – Smart Car Robot

## Smart Car Robot “steps”

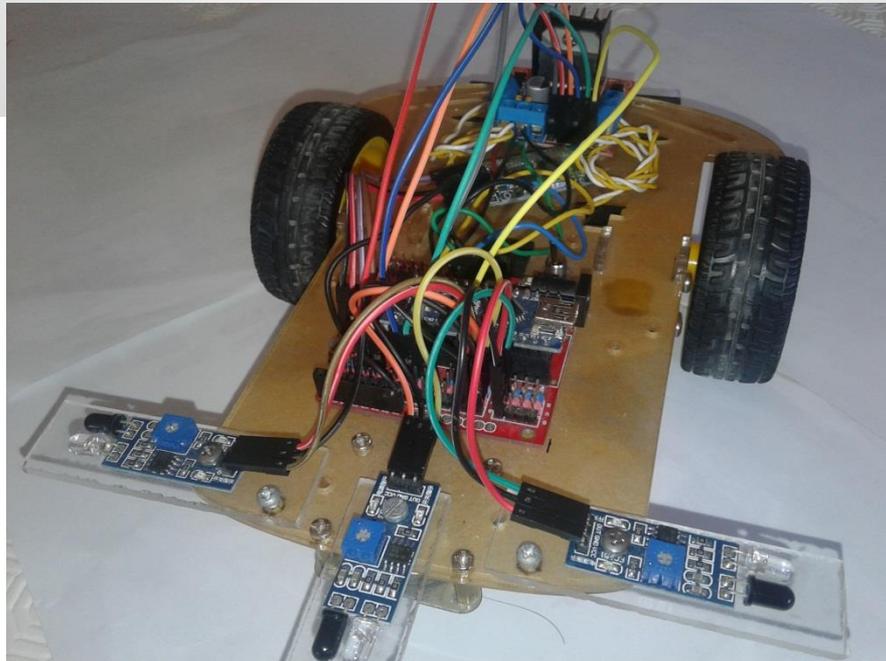
- Step 1: Assembling the robot support base;
- Step 2: Mounting the motor shield and top bracket;
- Step 3: Assembly of the components at the top of the robot;
- Step 4: Connections and sensors ;
- Stage 5 – Programming.



# Robotics – Smart Car Robot

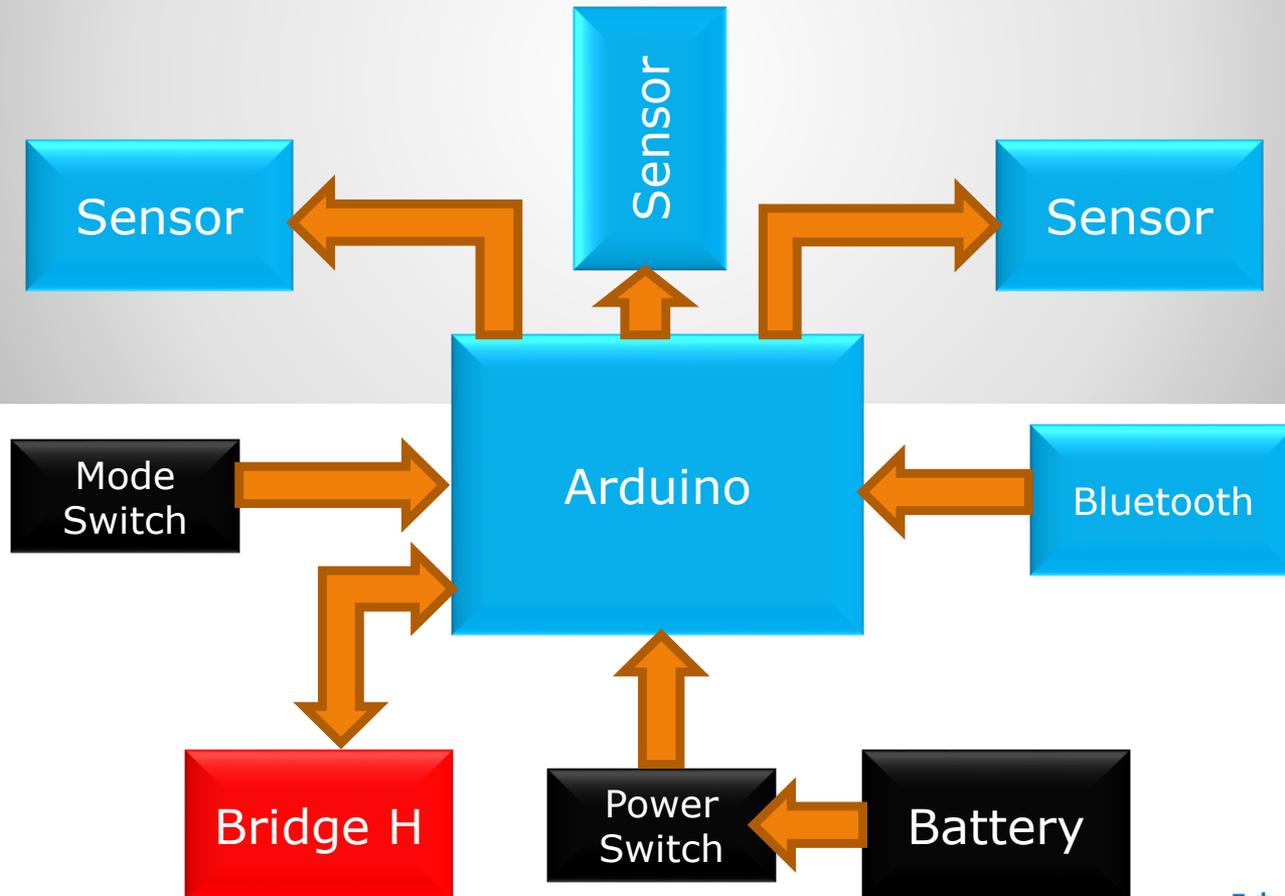
## Smart Car Robot “ defenition”

The Smart Car Robot is a vehicle that independently must overcome obstacles and continuous along a route. Through a SmartPhone vehicle can be controlled via bluetooth.



# Robotics - Smart Car Robot

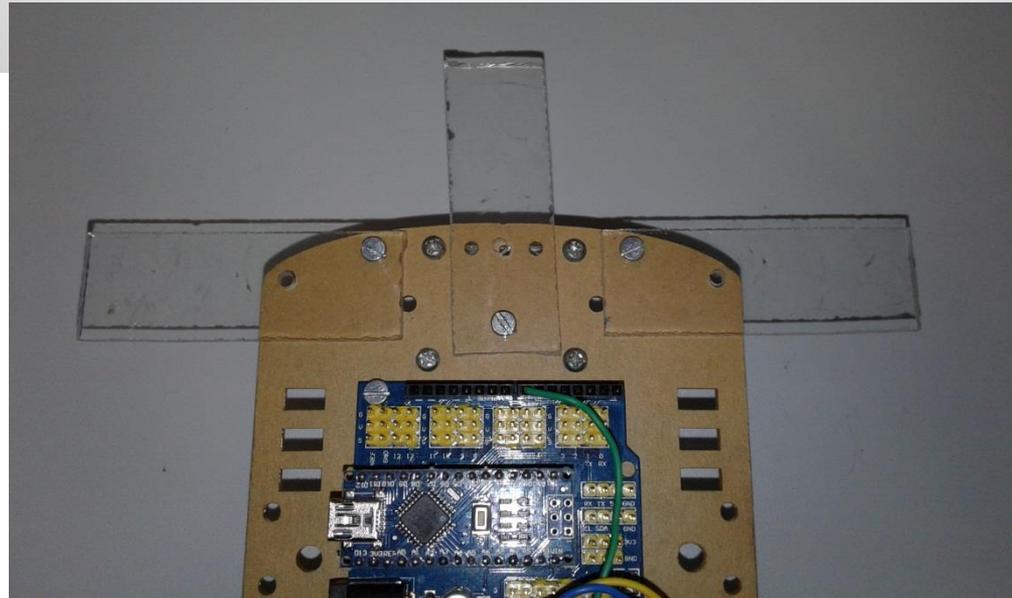
## Smart Car Robot "blocks"



# Robotics - Smart Car Robot

## Smart Car Robot "Implementation"

Place the acrylic in the correct positions and tighten with screws



Step  
By  
Step



# Robotics - Smart Car Robot

## Smart Car Robot "Implementation"

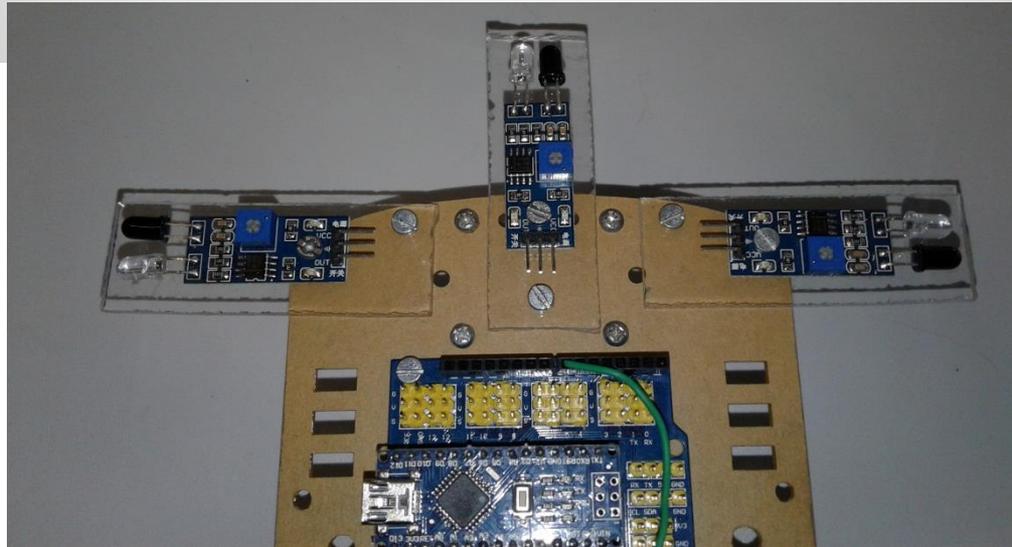
Place the universal wheel under the car chassis. You should put the fasteners and screws.



# Robotics – Smart Car Robot

## Smart Car Robot “Implementation”

Put the optical sensor on top of each acrylic, and tighten the remaining screws.

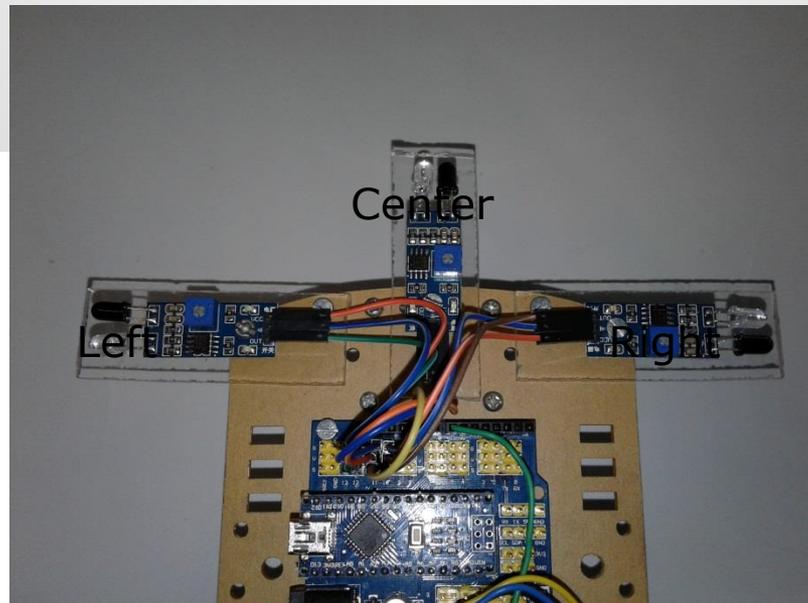


# Robotics - Smart Car Robot

## Smart Car Robot "Implementation"

Connect the wires" 10cm female to female" to the Arduino and sensors according to the pinout, and colors of the wires.

Vcc → Red  
Gnd → Blue  
Signal 12 → Green  
Signal 11 → Yellow  
Signal 10 → Brown



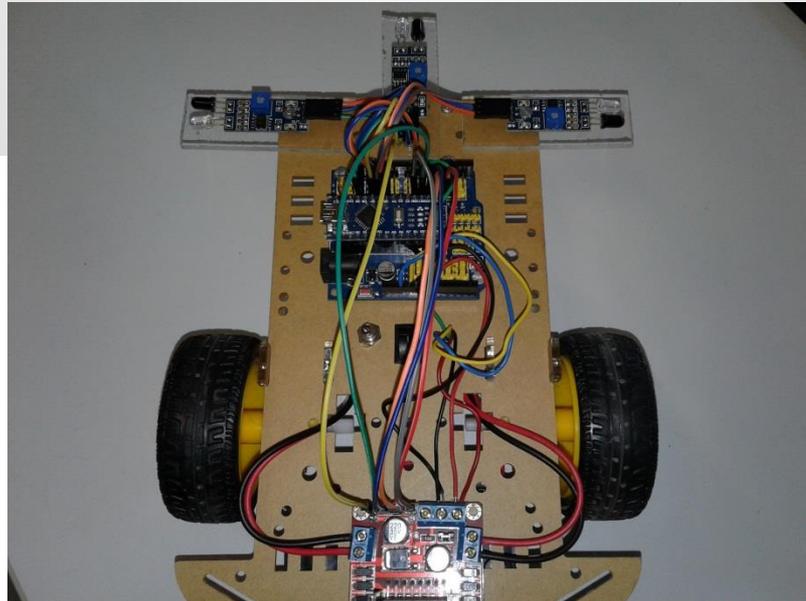
Signal 12 to Left  
Signal 11 to Center  
Signal 10 to Right



# Robotics - Smart Car Robot

## Smart Car Robot "Implementation"

Connect the wires" 20cm female to female" to the Arduino and bridge H according to the pinout, and colors of the wires.



Signal 9 → Yellow  
Signal 6 → Green  
Signal 5 → Blue  
Signal 4 → Orange  
Signal 3 → Red  
Signal 2 → Gray

Signal 9 to ENB  
Signal 6 to ENA  
Signal 5 to IN4  
Signal 4 to IN3  
Signal 3 to IN2  
Signal 2 to IN1

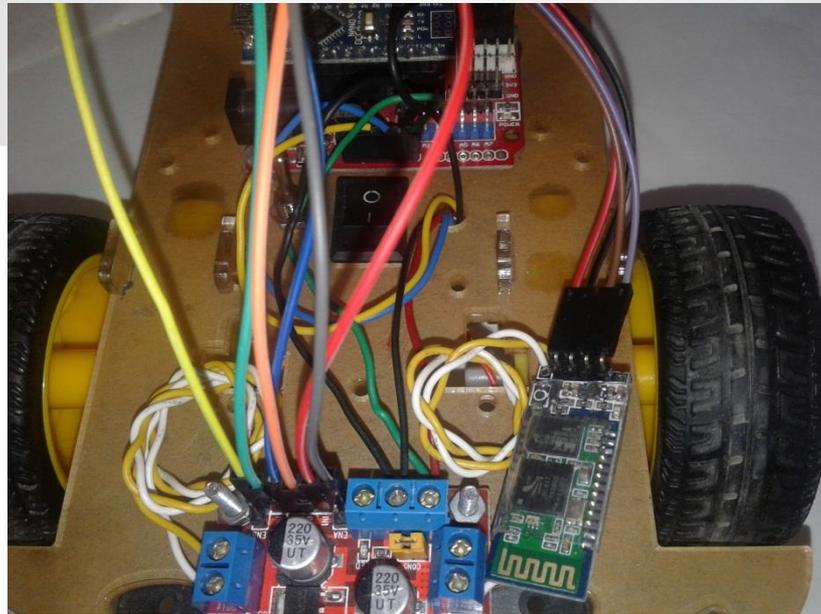


# Robotics - Smart Car Robot

## Smart Car Robot "Implementation"

Connect the wires" 10cm female to female" to the Arduino and bluetooth according to the pinout, and colors of the wires.

Vcc → Red  
Gnd → Black  
TX → White  
RX → Brown



TX to RX  
RX to TX



# Robotics – Smart Car Robot

## Smart Car Robot “Programming”

The bridge H is the component responsible for the speed and reversing the engines of the Smart car Robot.

The bridge H is the component responsible for the speed and reversing the engines of the Smart car Robot. According to the logical state of the sensors of the vehicle rotates in one direction.

S Left	S Center	S Right	IN1	IN2	IN3	IN4	Direction
1	1	0	0	1	1	0	FRONT
1	0	1	1	0	0	1	BACK
0	1	1	1	0	0	0	RIGHT
1	1	0	0	0	1	0	LEFT



# Robotics- Smart Car Robot

## Smart Car Robot “Programming”

Open the file Smart Car Robot and complete the code of programming.

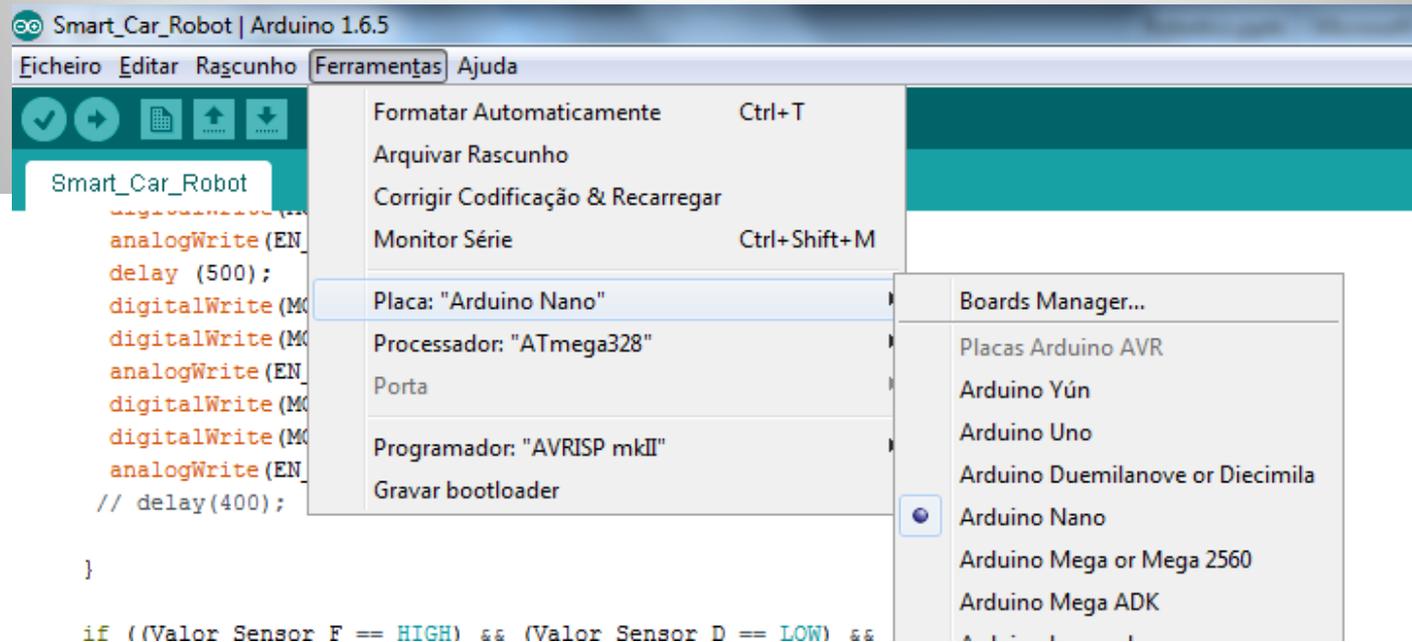
```
if ((Valor_Sensor_F == ) && (Valor_Sensor_D == ) && (Valor_Sensor_E == )) //LEFT
{
    digitalWrite(MOTORDA, );
    digitalWrite(MOTORDR, );
    analogWrite(EN_D, 255);
    digitalWrite(MOTOREA, );
    digitalWrite(MOTORER, );
    analogWrite(EN_E, 100);
}
```



# Robotics - Smart Car Robot

## Smart Car Robot "Connect and UpLoad"

Connect the USB cable from the PC to the Arduino and selects the correct board and its port. Then uploads the program



```
Smart_Car_Robot | Arduino 1.6.5
Ficheiro Editar Rascunho Ferramentas Ajuda
Smart_Car_Robot
digitalWrite (MO
analogWrite (EN
delay (500);
digitalWrite (MO
digitalWrite (MO
analogWrite (EN
digitalWrite (MO
digitalWrite (MO
analogWrite (EN
// delay(400);

}

if ((Valor Sensor F == HIGH) && (Valor Sensor D == LOW) &&
```

The screenshot shows the Arduino IDE interface. The 'Tools' menu is open, and 'Placa: "Arduino Nano"' is selected. The 'Boards Manager' window is also open, showing a list of boards with 'Arduino Nano' selected. The code in the background includes digital and analog write functions, a delay, and an if statement.



# Robotics- Smart Car Robot

## Smart Car Robot "Connect and UpLoad"

Install the application for controlling the Smart Car Robot and enjoy.

Barcode link for Smart\_Car\_Robot

