

Light Following Robot

Aim:

The main aim of the project is to make a car which will follow the lights for movement and get to learn about the components listed below.

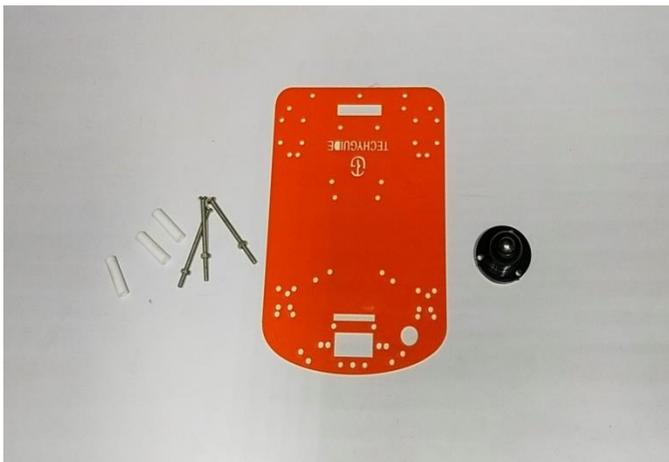


Components Required

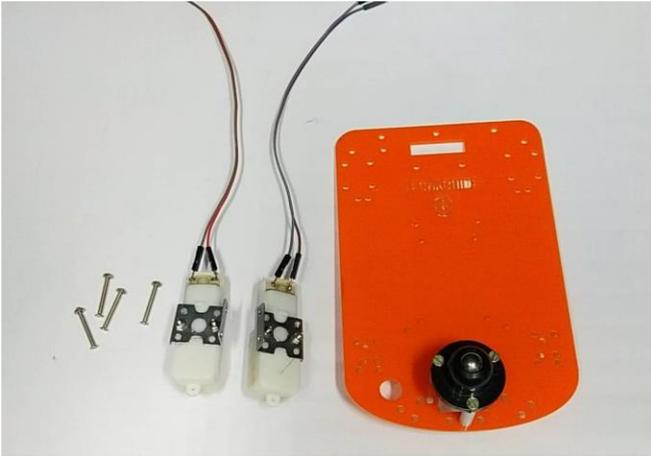
Sr. No	Component	Value	Quantity
1	Arduino UNO	-	1
2	DC Motor, Wheels	-	2
3	Motor Driver(L293D)	-	1
5	Jumper Wires	-	Few
6	Chassis, Castor Wheel	-	1
7	LDR Sensors	-	2
8	Battery(12V)	-	1

Hardware Assembling:

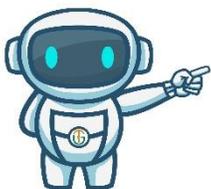
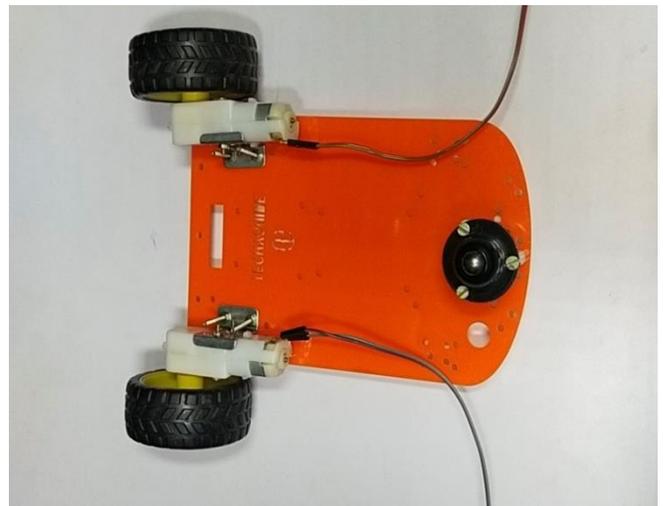
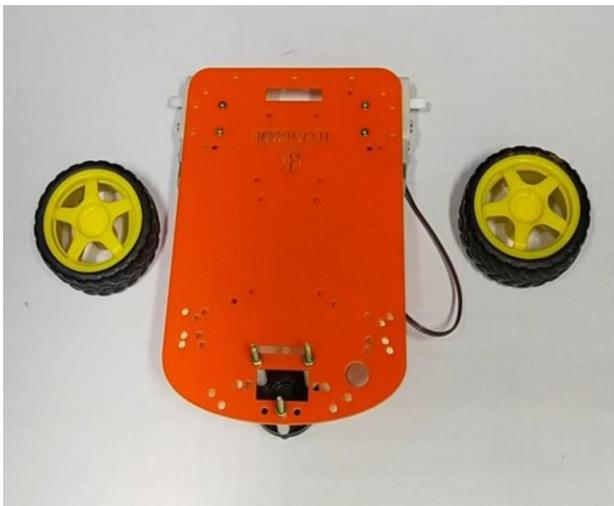
Step 1: Take out the chassis, caster wheel and connect both by the help of fittings.



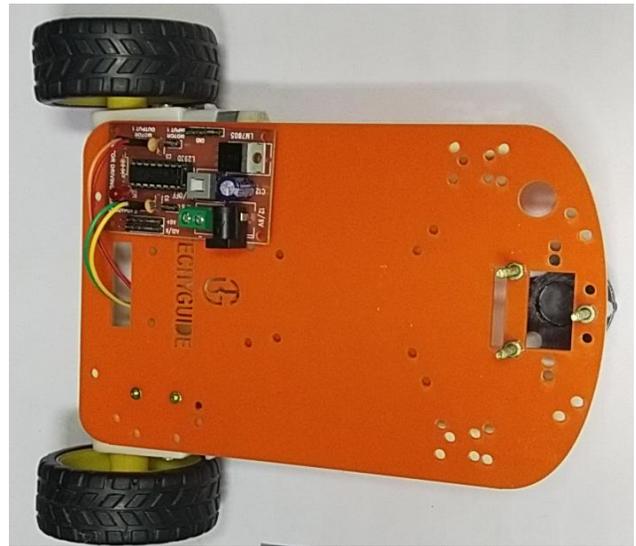
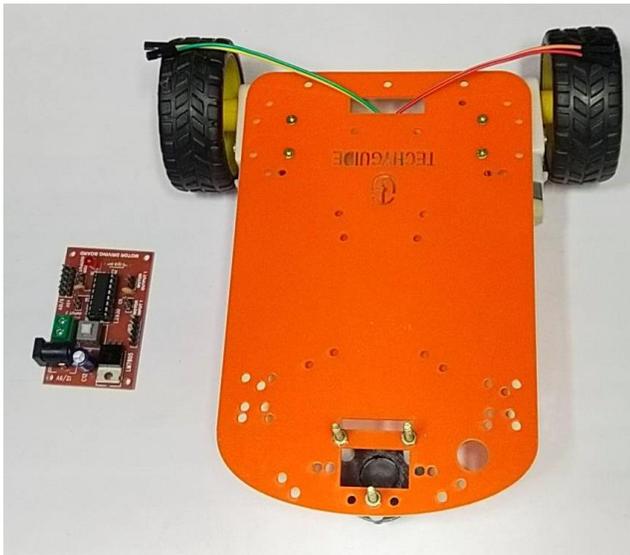
Step 2: Connect the motors both side as shown in the figure below.



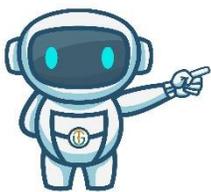
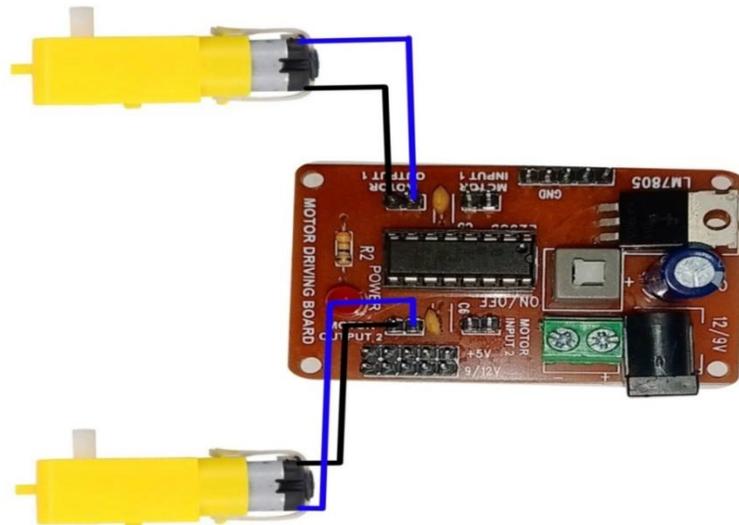
Step 3: Connect the wheels with both the motors.



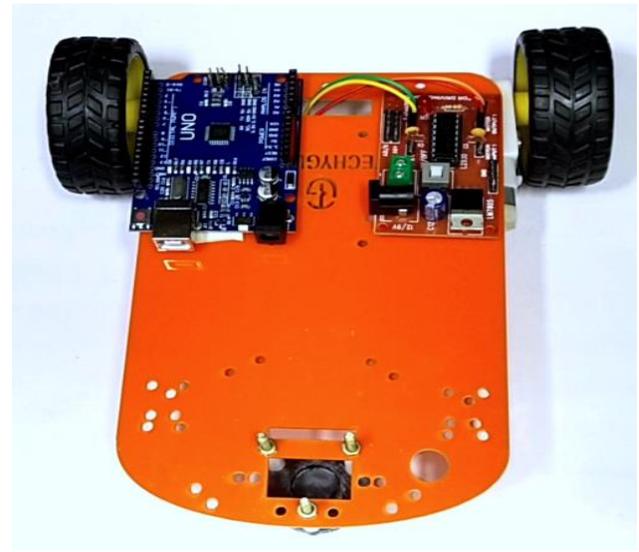
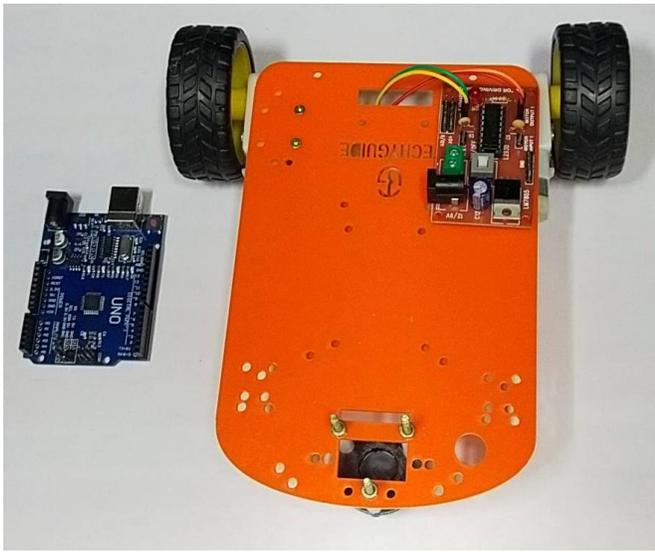
Step 4: Take out the motor driver and attach it at the top of the chassis using screws and nuts/ double side tape.



Step 5: Connect both motors with motor driver as per circuit diagram.

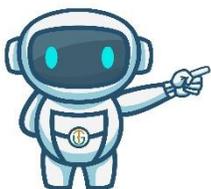
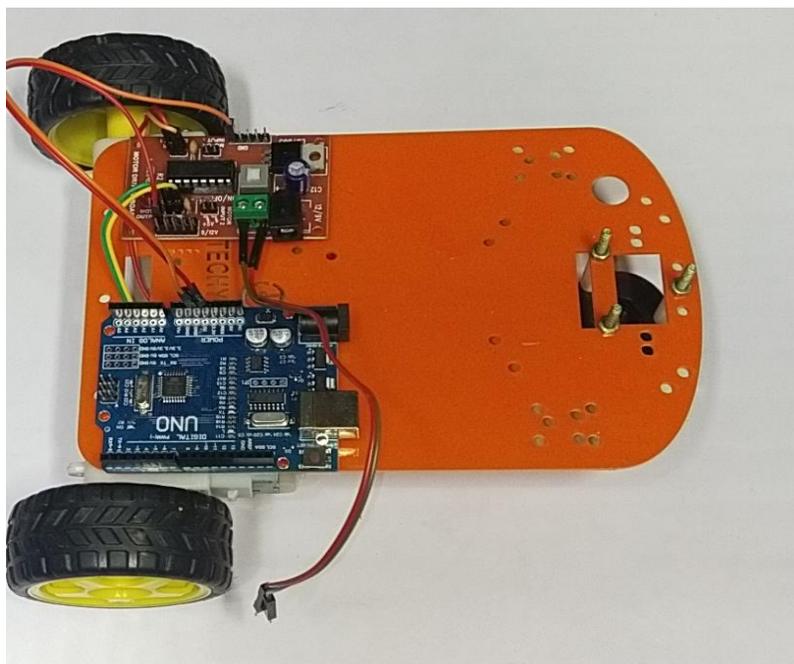


Step 6: Take out the Arduino UNO and attach it at the top of the chassis using the screws and nuts/Double side tape.



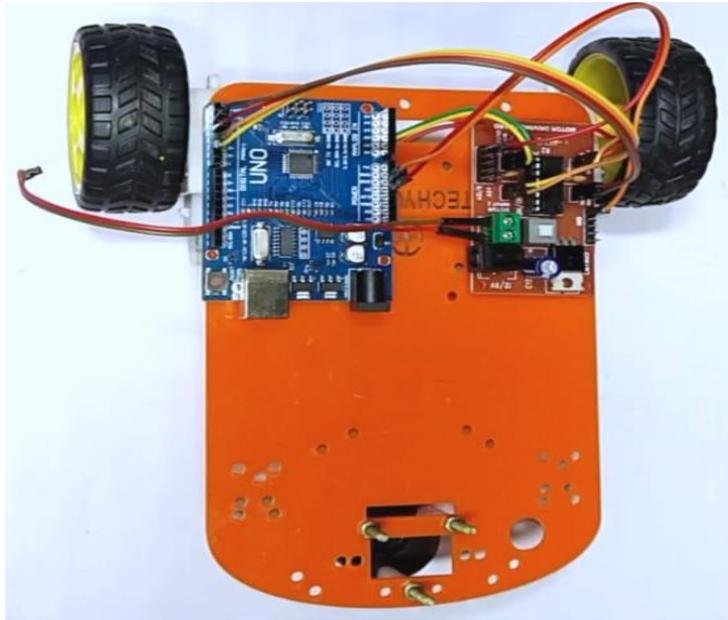
Step 7: Connect Arduino UNO with motor driver and connect jumper wire to the input of the motor controller.

5V ↔ 5V
GND ↔ GND

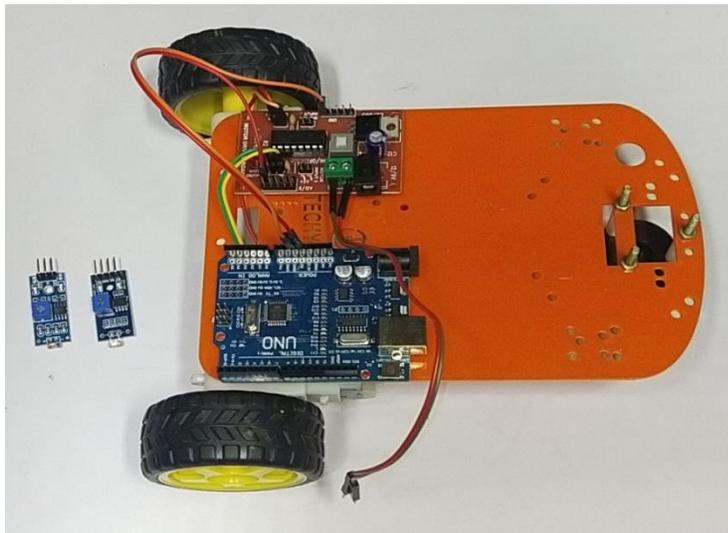


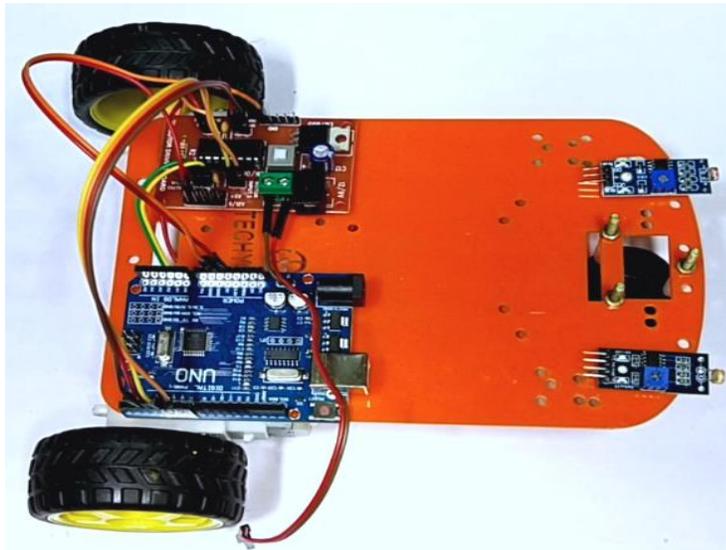
Step 8: Connect input signal pin of the motor driver to Arduino UNO.

Motor Driver	↔	Arduino UNO
IN1	↔	2
IN2	↔	3
IN3	↔	4
IN4	↔	5



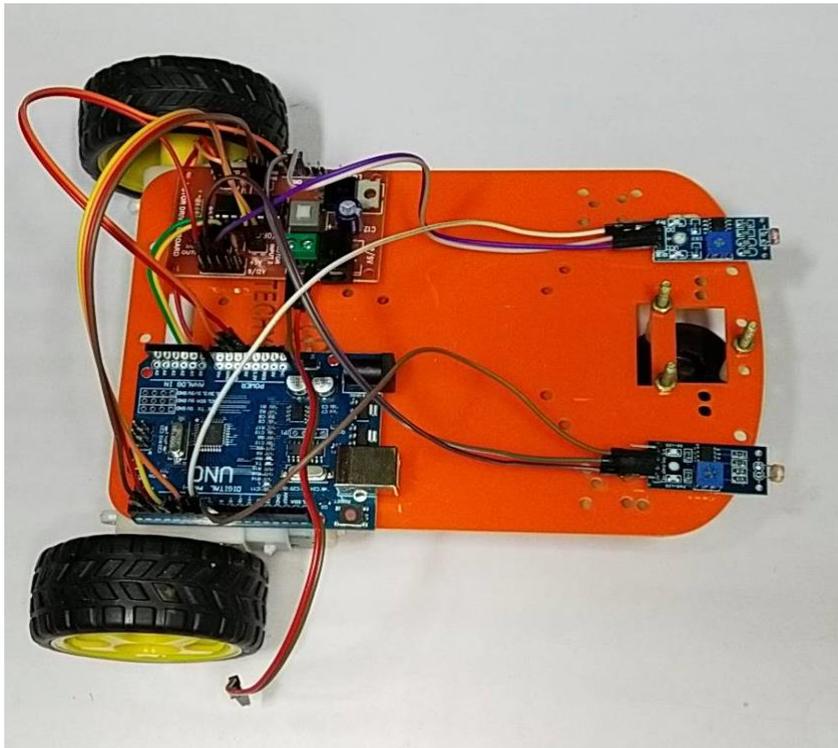
Step 9: Take out two LDR Sensors and attach it on Chassis by the help of double side tape or screws.



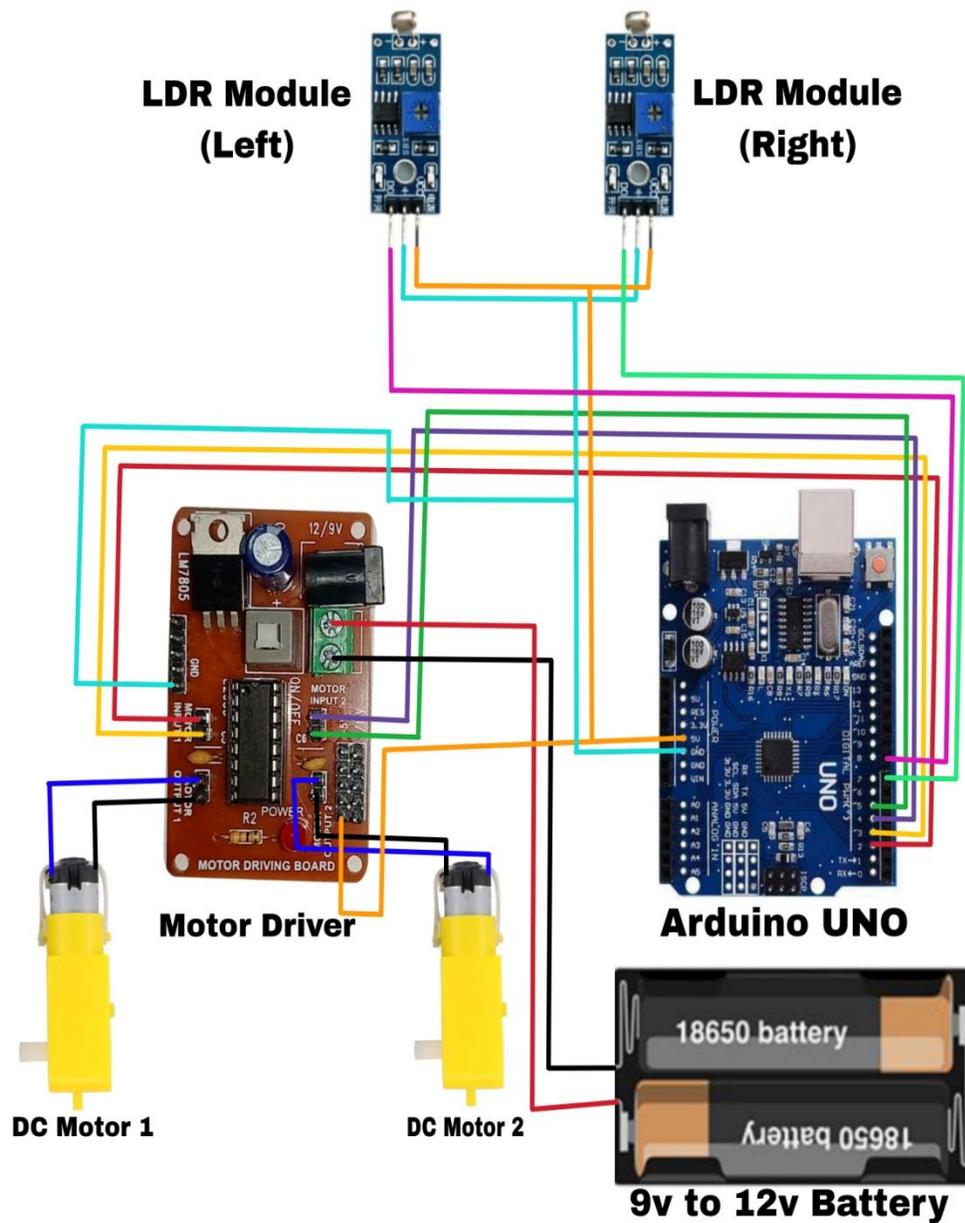


Step 10: Make connection between LDR Sensors, Arduino UNO and Motor Driver as shown in the figure below.

- LDR Sensors (VCC) \leftrightarrow 5V (Motor Driver)
- LDR Sensors (GND) \leftrightarrow GND (Motor Driver)
- Left LDR Sensor (OUT) \leftrightarrow Pin 8 (Arduino UNO)
- Right LDR Sensor (OUT) \leftrightarrow Pin 7 (Arduino UNO)



Circuit Diagram:



Code:

```
int RMotor_1 = 2;
int RMotor_2 = 3;
int LMotor_1 = 4;
int LMotor_2 = 5;

void setup() {
  Serial.begin(9600);
  Serial.println("TECHYGUIDE");
  pinMode(RMotor_1, OUTPUT);
  pinMode(RMotor_2, OUTPUT);
  pinMode(LMotor_1, OUTPUT);
}
```

```

pinMode(LMotor_2, OUTPUT);

}

void loop() {
int ldrright = digitalRead(7);
int ldrleft = digitalRead(8);

if (ldrright == 0 && ldrleft == 0) {
Serial.println("F");
move_forward();
}
if (ldrright == 0 && ldrleft == 1) {
Serial.println("R");
turn_right();
}
if (ldrright == 1 && ldrleft == 0) {
Serial.println("L");
turn_left();
}
if (ldrright == 1 && ldrleft == 1) {
Serial.println("S");
move_stop();
}
delay(100);

}

void move_forward() {
digitalWrite(RMotor_1, HIGH);
digitalWrite(RMotor_2, LOW);
digitalWrite(LMotor_1, HIGH);
digitalWrite(LMotor_2, LOW);
}

void move_backward() {
digitalWrite(RMotor_1, LOW);
digitalWrite(RMotor_2, HIGH);
digitalWrite(LMotor_1, LOW);
digitalWrite(LMotor_2, HIGH);
}

void turn_right() {
digitalWrite(RMotor_1, HIGH);
digitalWrite(RMotor_2, LOW);
digitalWrite(LMotor_1, LOW);
digitalWrite(LMotor_2, HIGH);
}

void turn_left() {

```

```
digitalWrite(RMotor_1, LOW);  
digitalWrite(RMotor_2, HIGH);  
digitalWrite(LMotor_1, HIGH);  
digitalWrite(LMotor_2, LOW);  
}  
  
void move_stop() {  
digitalWrite(RMotor_1, LOW);  
digitalWrite(RMotor_2, LOW);  
digitalWrite(LMotor_1, LOW);  
digitalWrite(LMotor_2, LOW);  
}
```

Conclusion: From this project we got the idea about all components, connection of those components, coding and made a Light Following Robot.