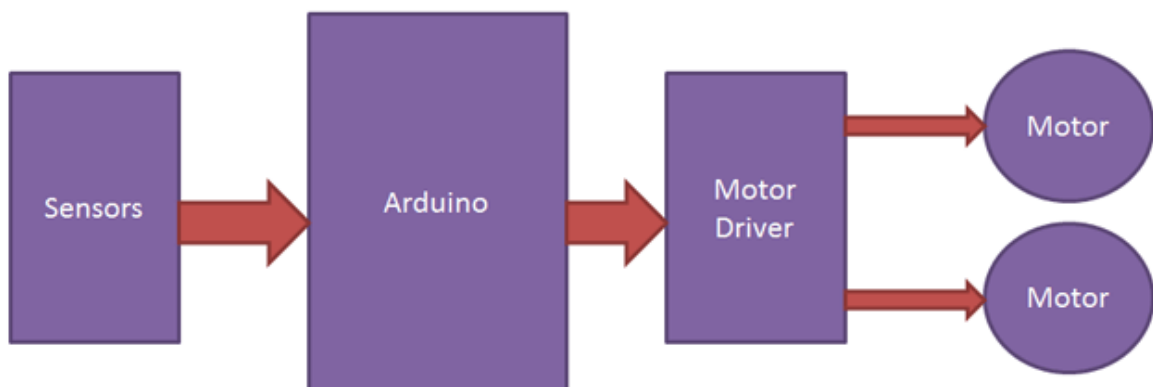


COMPONENT:

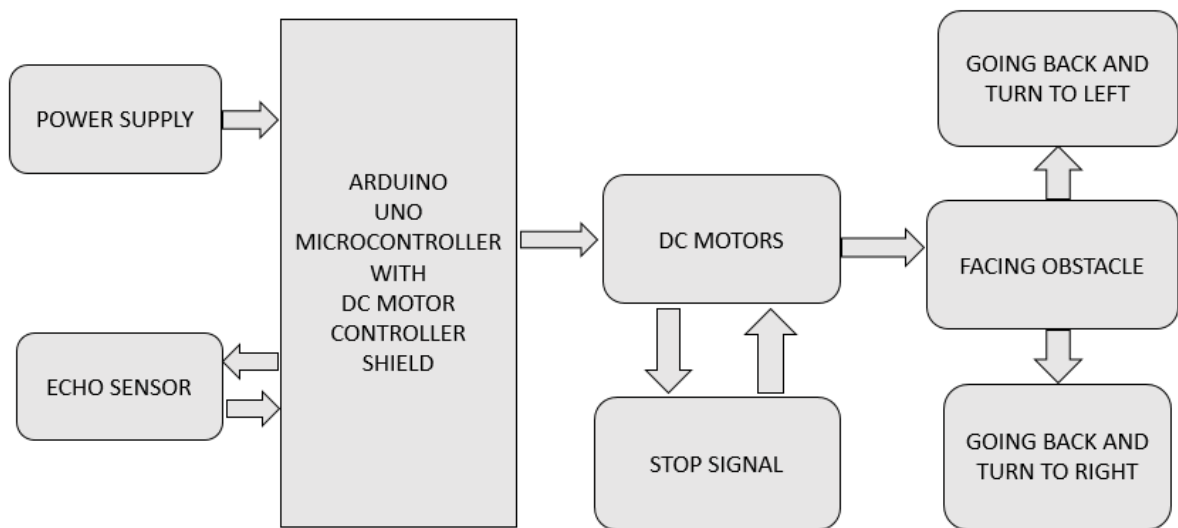
1. Arduino Uno R3
2. L298 Motor Driver
3. DC motor
4. HC-05 Bluetooth Module
5. Infrared IR Wireless
6. Remote Control Module
7. IR Sensor
8. Ultrasonic Sensor Holder
9. Servo Motor
10. Ultrasonic Sensor hc-sr0
11. Jumper Wires
12. LED
13. LM358 Dual Operational Amplifier
14. 10k Variable Resistor
15. BD139 NPN Transistor
16. 4148 Diode
17. LDR Sensor
18. Resistor
19. Capacitor
20. TIP32C Transistor
21. 18650 3.7V 1200mAh Lithium-Ion Rechargeable Cell
22. On/Off switch

BLOCK DIAGRAM:

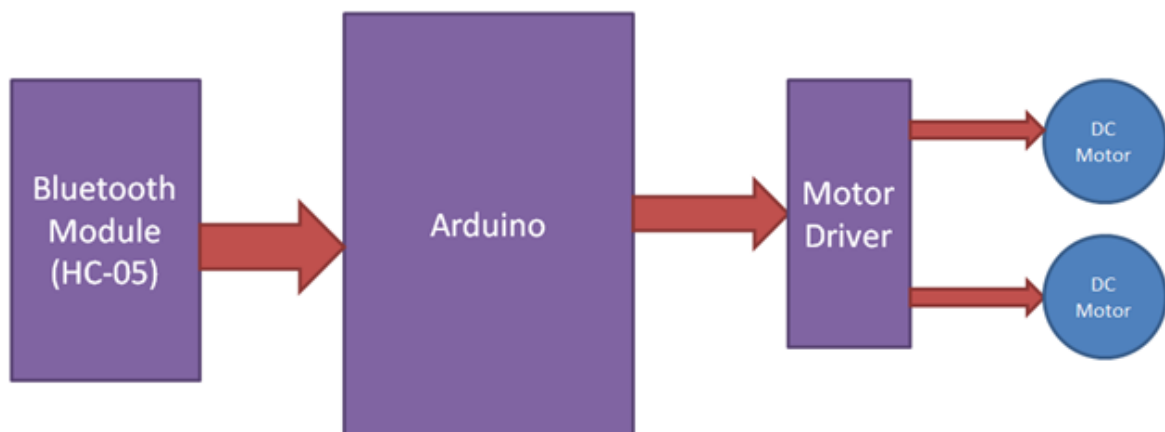
1) Line Following



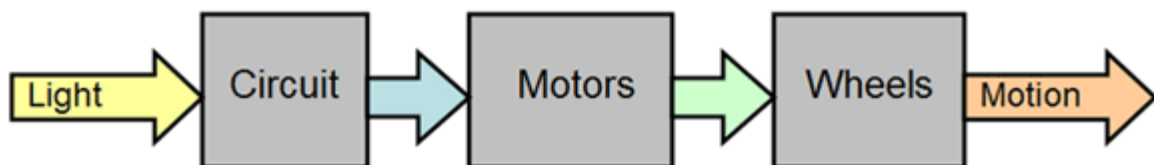
2) Obstacle Avoiding



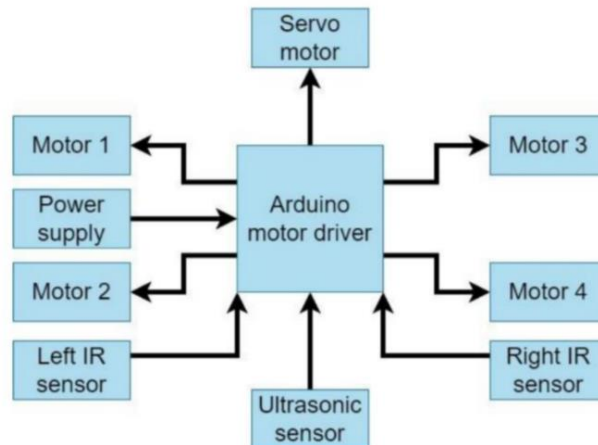
3) Voice Control



4) Light Following



5) Human Following



CONNECTION:

1) Connect L298 Motor Driver to Arduino UNO:

Arduino UNO	L298 Motor Driver
D10	ENA
D9	IN1
D8	IN2
D7	IN3
D6	IN4
D5	ENB
GND	GND
VCC=5V	VCC=12V

2) Connect L298 Motor Driver to DC motor:

L298 Motor Driver	DC motor	
OUT 1	Positive terminal	DC motor 1 & 2
OUT2	Negative terminal	
OUT3	Positive terminal	DC motor 3 & 4
OUT4	Negative terminal	

Notes: We will connect the motors in criss cross pattern. This is because we have to make the car in such a way that two side motor rotates in same direction in order to go Forward Backward and other known directions

3) Connect IR Sensors for line following to Arduino UNO:

IR Sensors	Arduino UNO
Out IR Sensors (Right)	A0
Out IR Sensors (Left)	A1
GND	GND
VCC	VCC

4) Connect IR Sensors for human following to Arduino UNO:

IR Sensors	Arduino UNO
Out	A5
GND	GND
VCC	VCC

5) Connect Ultrasonic sensor to Arduino UNO:

Ultrasonic sensor	Arduino UNO
Trig	A3
Echo	A2
GND	GND
VCC	VCC

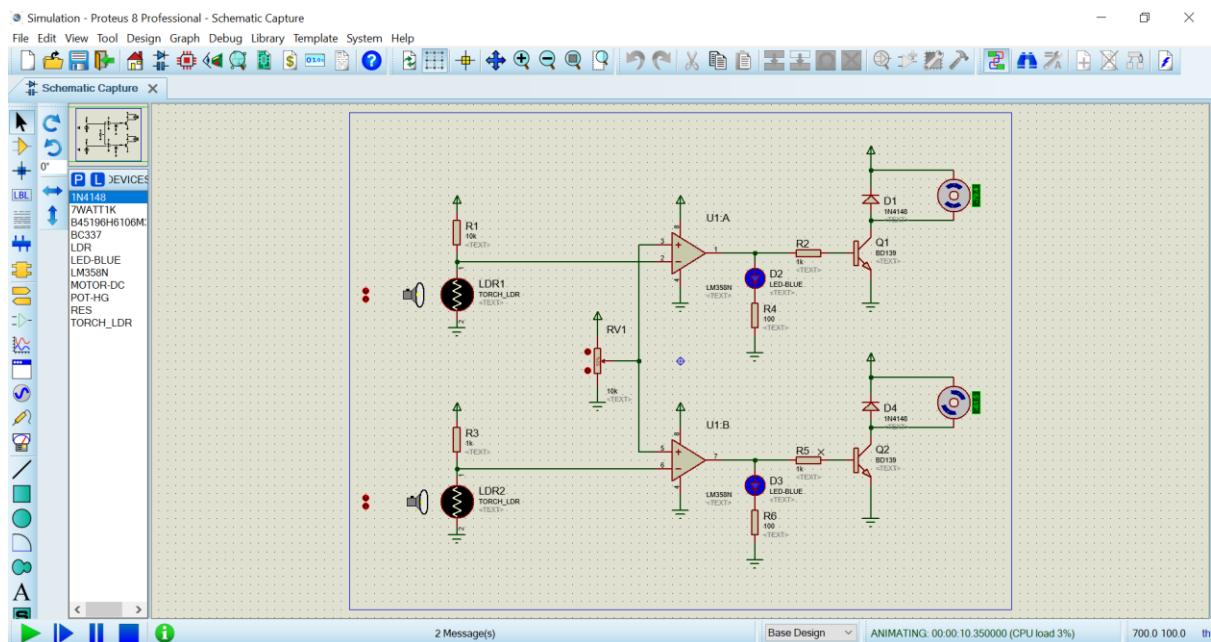
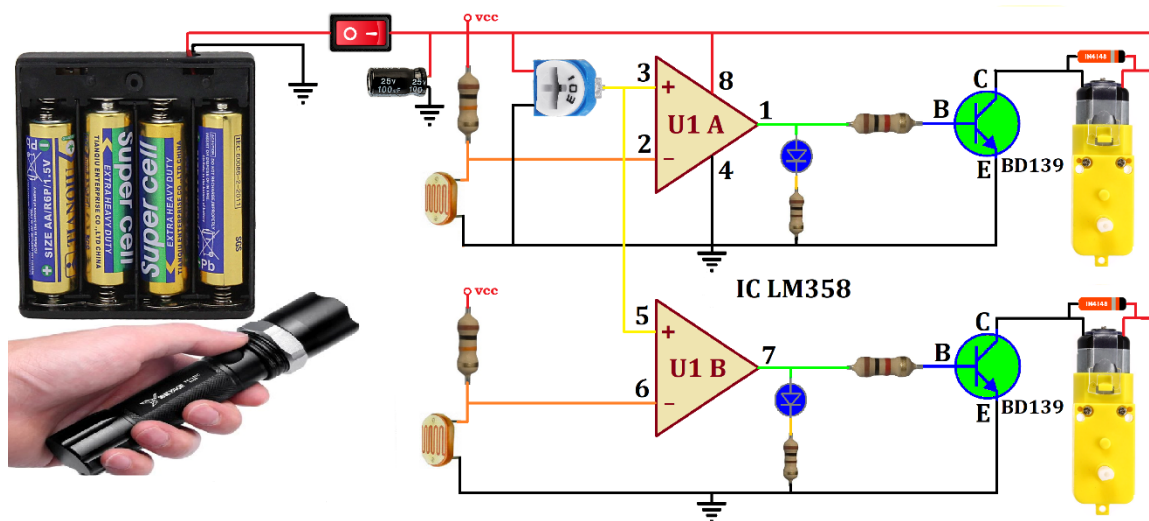
6) Connect Bluetooth Module to Arduino UNO:

Bluetooth Module	Arduino UNO
Rx	D3
Tx	D2
GND	GND
VCC	VCC

7) Connect Servo motor to Arduino UNO:

Servo motor	Arduino UNO
Out	A4
GND	GND
VCC	VCC

8) Connection of Light following robot



Notes: Simulation file is attachment on this link: -

https://drive.google.com/file/d/18almWSFfpM8N7vFQDc9QKJY_Ze7oOsKI/view?usp=sharing

SOFTWARE USED:

- I. Proteus 8™ software
- II. Arduino IDE
- III. Easy EDA