

## LINE FOLLOWING ROBOT

Line follower and obstacle avoiding robot

## WEEK 1 PLAN:

This week, our primary focus is on **circuit design, hardware integration, coding, hardware testing, and project presentation** to ensure smooth progress and system reliability. Each team member has been assigned specific tasks to maximize efficiency



PITCH DECK

## CONTRIBUTION:

**KONDALA SEERSHIKA**  
**2023MEB1355**

**Power Point presentation**  
and components  
functionality.

**JASNOOR KAUR**  
**2023MEB1351**

Design and **simulate**  
**circuits** in Tinkercad.

**DEEPANSHI DHIR**  
**2023MEB1339**

Assist in **Tinkercad circuit**  
**design.**

**JUVVANAPUDI NIKHIL**  
**2023MEB1352**

**Integrate hardware,**  
perform **testing.**

**DAGGOLU SAI MOHITH**  
**REDDY**  
**2023MEB1338**

**Assemble hardware,**  
conduct **testing, and**  
**integration.**



## MAIN -COMPONENTS FUNCTIONALITY



### ARDUINO UNO

1. Acts as the brain, processing sensor inputs and controlling outputs.



### ULTRASONIC SENSORS

5. Detects obstacles and avoids collisions.



### MOTOR DRIVER SHIELD

2. Drives the motors based on Arduino commands.



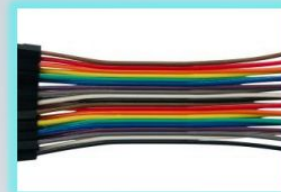
### DC POWER SWITCH

6. Controls the power supply to the circuit.



### TT GEAR MOTORS+WHEELS

3. Provide movement and control speed for navigation.



### JUMPER WIRES

7. Connect components for data and power transmission.



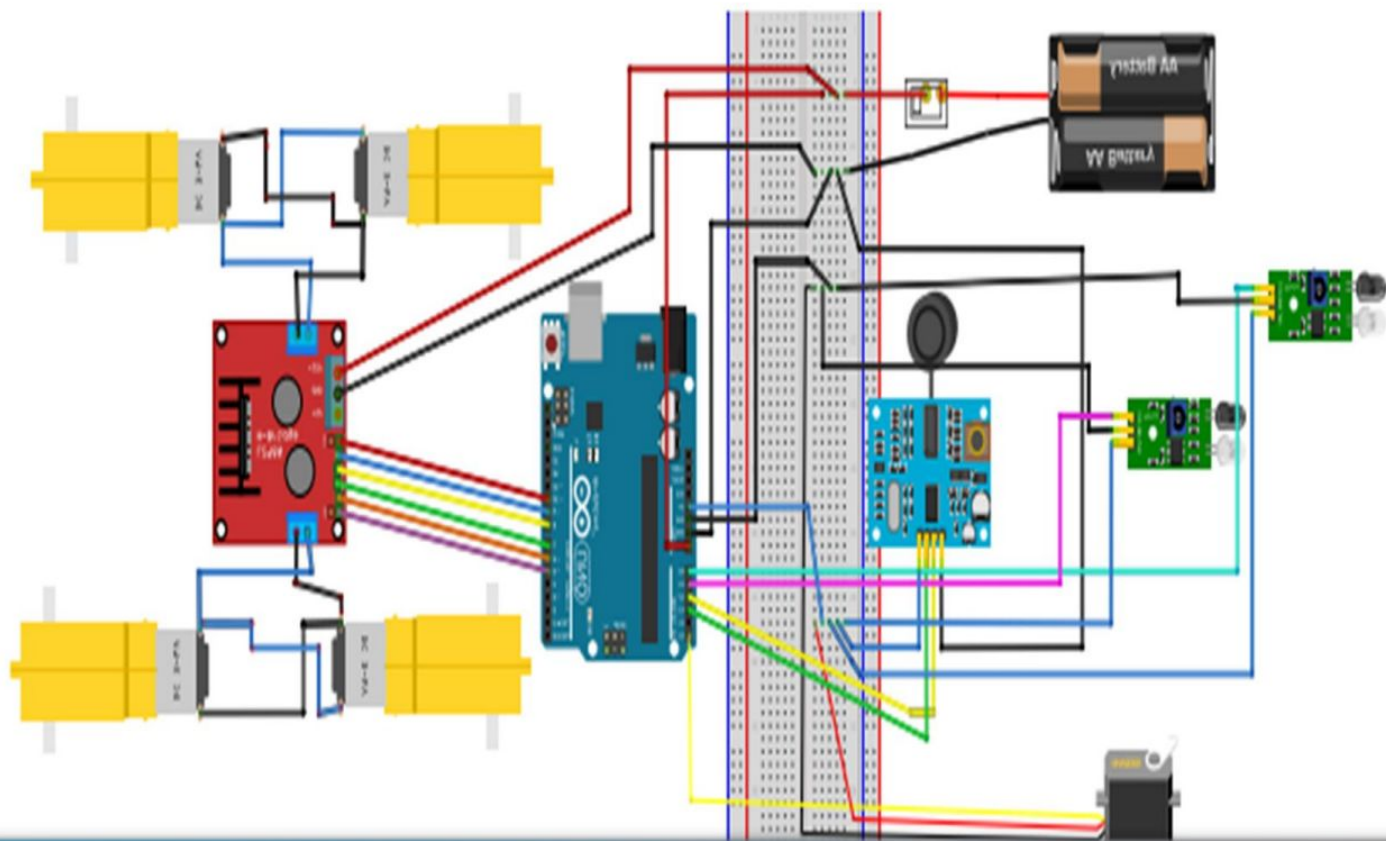
### INFRARED SENSORS

4. Detects the line path for following.



### SG90 SERVO MOTOR

8. Adjusts direction or moves an obstacle avoidance mechanism.



# TINKERCAD

- CONNECTIONS
- EQUIPMENTS
- KEY POINTS

BATTERY	ARDUINO
Positive(+ve)	Vin
Negative(-ve)	GND

IR SENSOR 1	ARDUINO
VCC	Ao
GND	GND
OUT	5V

IR SENSOR 2	ARDUINO
VCC	A1
GND	GND
OUT	5V

SERVO MOTOR	ARDUINO
Control(yellow)	A5
GND	GND
VCC	5V

ULTRASONIC SENSOR	ARDUINO
ECHO	A2
GND	GND
VCC	5V
TRIGGER	A3

MOTOR DRIVER SHIELD	TT GEAR MOTOR
Out 1	-ve of gear motor 1 and 2
Out 2	+ve of gear motor 1 and 2
Out 3	-ve of gear motor 3 and 4
Out 4	+ve of gear motor 3 and 4

MOTOR DRIVER SHIELD	ARDUINO
12V	Vin
GND	GND
5V	-----
ENA	10
IN1	9
IN2	8
IN3	7
IN4	6
ENB	5

# HARDWARE PART

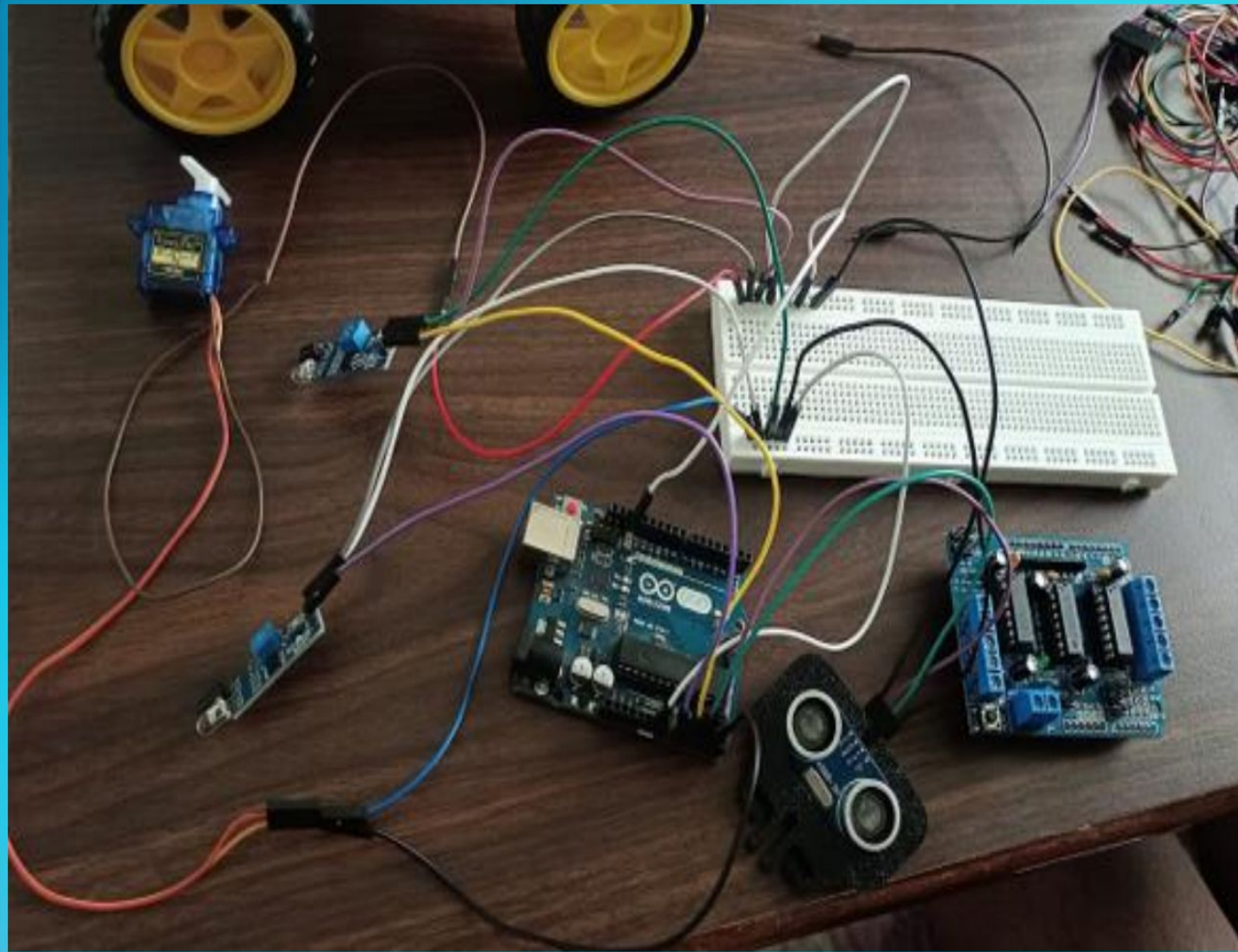




**ALL COMPONENTS  
HAVE BEEN TESTED.**

**DC MOTOR MOVEMENT  
IS SMOOTH**

**SOLDERING STILL NEEDS  
TO BE DONE**





```

#include <Servo.h>

const int trigPin = A0, echoPin = A1, irSensor1 = A2, irSensor2 = A3, servoPin =
A4;
Servo myServo;

void setup() {
  Serial.begin(9600);
  pinMode(trigPin, OUTPUT); pinMode(echoPin, INPUT);
  pinMode(irSensor1, INPUT); pinMode(irSensor2, INPUT);
  myServo.attach(servoPin); myServo.write(0);
}

long getDistance() {
  digitalWrite(trigPin, LOW); delayMicroseconds(2);
  digitalWrite(trigPin, HIGH); delayMicroseconds(10);
  digitalWrite(trigPin, LOW);
  return pulseIn(echoPin, HIGH) * 0.034 / 2;
}

void loop() {
  long distance = getDistance();
  if (analogRead(irSensor1) < 500 || analogRead(irSensor2) < 500)
  Serial.println("Object detected!");
  if (distance < 10) {
    Serial.println("Object very close! Moving servo.");
    myServo.write(90); delay(1000); myServo.write(0);
  }
  delay(500);
}

```

## TEST CODE:

Still needs to work on...