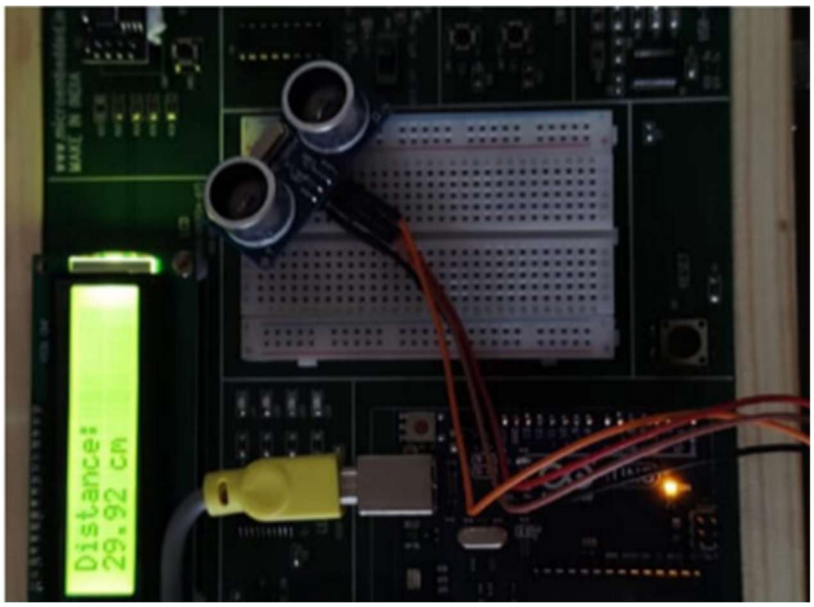
Ultrasonicsensors

Input:

```
#include <LiquidCrystal.h>

LiquidCrystal lcd(6,9,10,11,12,13);   //rs,en,d4,d5,d6,d7

const int trigPin = A4;
const int echoPin = A5;

void setup() {
  Serial.begin(9600);
  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);
  lcd.begin(16,2);
  lcd.setCursor(0, 0);
  lcd.print("Distance:");
}

void loop() {
  long duration;
  float distanceCm;

  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);

  duration = pulseIn(echoPin, HIGH);
  distanceCm = duration * 0.034 / 2;

  lcd.setCursor(0, 1);
  lcd.print(distanceCm);
  lcd.print(" cm     ");

  Serial.println(distanceCm);
  delay(500);
}
```

Output:

```
70.38
1189.13
1189.24
1189.13
1189.22
1189.17
1189.24
67.90
1189.46
1189.27
118
155.50
155.50
155.50
155.96
156.33
155.53
155.96
226.25
51.83
27.13
5.29
9.44
1188.90
```



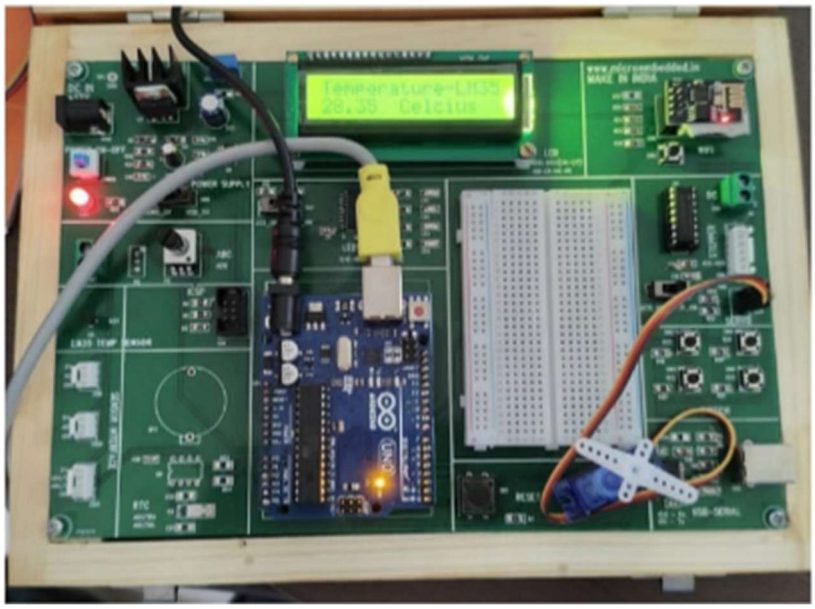
Servo Motor

Input

```
#include <Servo.h>


const int potPin = A0;     // Analog pin connected to potentiometer
const int servoPin = 5;    // Digital pin connected to servo signal
Servo myServo;

void setup() {
  myServo.attach(servoPin); // Attach the servo to pin 9
  Serial.begin(9600);
}

void loop() {
  int potValue = analogRead(potPin);          // Read the potentiometer (0-1023)

  int angle = map(potValue, 0, 1023, 0, 180);  // Map to servo angle (0-180)
  Serial.print(potValue);
  Serial.print("=>");
  myServo.write(angle);                       // Set servo position
  Serial.println(angle);
  delay(15); // Small delay for smooth movement
}
```

Output

```
12:10:14.463 -> 955=>168
12:10:14.463 -> 965=>169
12:10:14.500 -> 966=>169
12:10:14.500 -> 976=>171
12:10:14.500 -> 979=>172
12:10:14.532 -> 985=>173
12:10:14.532 -> 1003=>176
12:10:14.565 -> 993=>174
12:10:15.535 -> 912=>160
12:10:15.535 -> 895=>157
12:10:15.567 -> 888=>156
12:10:15.567 -> 876=>154
12:10:15.599 -> 819=>144
12:10:15.599 -> 728=>128
12:10:15.632 -> 64>114
12:10:15.632 -> 580=>10SH514=>90
12:10:15.670 -> 455=>80
12:10:15.670 -> 390=>68
12:10:15.709 -> 328=
```



Stepper Motor

Servo Motor

Input

```
// Define stepper motor pins
#define IN1 2
#define IN2 3
#define IN3 4
#define IN4 5

int steps[4][4] = {
  {1, 0, 0, 0},
  {0, 1, 0, 0},
  {0, 0, 1, 0},
  {0, 0, 0, 1}
};

void setup() {
  pinMode(IN1, OUTPUT);
  pinMode(IN2, OUTPUT);
  pinMode(IN3, OUTPUT);
  pinMode(IN4, OUTPUT);
}

void stepMotor(int step) {
  digitalWrite(IN1, steps[step][0]);
  digitalWrite(IN2, steps[step][1]);
  digitalWrite(IN3, steps[step][2]);
  digitalWrite(IN4, steps[step][3]);
}

void loop() {
  for (int i = 0; i < 4; i++) {
    stepMotor(i);
    delay(5); // Adjust for speed
  }
}
```

Output

```
12:20:53.245 -> 292=>51
12:20:53.245 -> 234=>41
12:20:53.277 -> 183=>32
12:20:53.277 -> 131=>23
12:20:53.309 -> 84=>14
12:20:53.309 -> 28=>4
12:20:53.341 -> 0=>0
12:20:53.341 -> 0=>0
12:20:53.373 -> 0=>0
12:20:53.373 -> 0=>0
12:20:53.404 -> 0=>0
```