

```
#include <Servo.h>

int pos=0;

int pos1;

#define uint8 unsigned char //used to indicate the state of button4 key

uint8 b1state = 0;

#define button1 8 //the number of the button 1

Servo servo_9;


int lightCal;

int lightVal;

int LDR = A0;

float temp;

int tempPin = A1;


const int trigPin = 2;

const int echoPin = 3;

const int trigPin1 = 4;

const int echoPin1 = 5;

const int trigPin2 = 6;

const int echoPin2 = 7;

const int trigPin3 = 11;

const int echoPin3 = 12;

// defines variables

long A,B,C,D,E,F,H,area,volume,L,Bre;
```

```

void setup()
{
    pinMode(LDR, INPUT);

    pinMode(tempPin, INPUT);

    servo_9.attach(9);

    digitalWrite(9,LOW);

    pinMode(button1,INPUT_PULLUP);

    pinMode(trigPin, OUTPUT); // Sets the trigPin as an Output

    pinMode(echoPin, INPUT);

    pinMode(trigPin1, OUTPUT); // Sets the trigPin as an Output

    pinMode(echoPin1, INPUT);

    pinMode(trigPin2, OUTPUT); // Sets the trigPin as an Output

    pinMode(echoPin2, INPUT);

    pinMode(trigPin3, OUTPUT); // Sets the trigPin as an Output

    pinMode(echoPin3, INPUT); // Sets the echoPin as an Input

    Serial.begin(9600); // Starts the serial communication
}

void loop() {

    servo_9.write(pos);

    b1state = digitalRead(button1);

    if(b1state == 0)  //////////////////////////////////////////pushbutton////////////////////////////////////////

    {

        ldr();

        temprature();

        length();
    }
}

```

```
    breath();

    ultrasonic1();

    ultrasonic2();

    delay(500);

    hight();

    ultrasonic3();

    ultrasonic4();

    delay(500);

    area = Bre*L;

    Serial.print("area =");

    Serial.println(area);

    volume = area * H;

    Serial.print("volume= ");

    Serial.println(volume);

}

}

void length(){

    servo_9.write(pos);

    digitalWrite(trigPin, LOW);

    delayMicroseconds(2);

    // Sets the trigPin on HIGH state for 10 micro seconds

    digitalWrite(trigPin, HIGH);

    delayMicroseconds(10);

    digitalWrite(trigPin, LOW);

    // Reads the echoPin, returns the sound wave travel time in microseconds
```

```

A = pulseIn(echoPin, HIGH);

// Calculating the distance

A = A*0.034/2;


    delay(1000);

    digitalWrite(trigPin1, LOW);

    delayMicroseconds(2);

// Sets the trigPin on HIGH state for 10 micro seconds

    digitalWrite(trigPin1, HIGH);

    delayMicroseconds(10);

    digitalWrite(trigPin1, LOW);

// Reads the echoPin, returns the sound wave travel time in microseconds

B = pulseIn(echoPin1, HIGH);

// Calculating the distance

B = B*0.034/2;

// Prints the distance on the Serial Monitor


    delay(1000);

    L = A+B;

    Serial.print("length = ");

    Serial.print(L);

    Serial.println();

    delay(2000);

}

void breath(){

```

```
pos1=pos+90;

servo_9.write(pos1);

digitalWrite(trigPin, LOW);

delayMicroseconds(2);

// Sets the trigPin on HIGH state for 10 micro seconds

digitalWrite(trigPin, HIGH);

delayMicroseconds(10);

digitalWrite(trigPin, LOW);

// Reads the echoPin, returns the sound wave travel time in microseconds

C = pulseIn(echoPin, HIGH);

// Calculating the distance

C = C*0.034/2;


delay(1000);

digitalWrite(trigPin1, LOW);

delayMicroseconds(2);

// Sets the trigPin on HIGH state for 10 micro seconds

digitalWrite(trigPin1, HIGH);

delayMicroseconds(10);

digitalWrite(trigPin1, LOW);

// Reads the echoPin, returns the sound wave travel time in microseconds

D = pulseIn(echoPin1, HIGH);

// Calculating the distance

D = D*0.034/2;

// Prints the distance on the Serial Monitor
```

```
delay(1000);  
  
Bre = C+D;  
  
Serial.print("breath = ");  
  
Serial.print(Bre);  
  
Serial.println();  
  
delay(2000);  
  
}
```

```
void hight()  
{  
  
digitalWrite(trigPin2, LOW);  
  
delayMicroseconds(2);  
  
// Sets the trigPin on HIGH state for 10 micro seconds  
  
digitalWrite(trigPin2, HIGH);  
  
delayMicroseconds(10);  
  
digitalWrite(trigPin2, LOW);  
  
// Reads the echoPin, returns the sound wave travel time in microseconds  
  
E = pulseIn(echoPin2, HIGH);  
  
// Calculating the distance  
  
E = E*0.034/2;  
  
// Prints the distance on the Serial Monitor
```

```

delay(1000);

digitalWrite(trigPin3, LOW);

delayMicroseconds(2);

// Sets the trigPin on HIGH state for 10 micro seconds

digitalWrite(trigPin3, HIGH);

delayMicroseconds(10);

digitalWrite(trigPin3, LOW);

// Reads the echoPin, returns the sound wave travel time in microseconds

F = pulseIn(echoPin3, HIGH);

// Calculating the distance

F = F*0.034/2;

// Prints the distance on the Serial Monitor

delay(1000);

H = F+E;

Serial.print("hight= ");

Serial.print(H);

Serial.println();

delay(500);

}

void ultrasonic1(){

digitalWrite(trigPin, LOW);

digitalWrite(echoPin, LOW);

}

void ultrasonic2(){

```

```
digitalWrite(trigPin1, LOW);  
digitalWrite(echoPin1, LOW);  
}  
void ultrasonic3(){  
    digitalWrite(trigPin2, LOW);  
    digitalWrite(echoPin2, LOW);  
}  
void ultrasonic4(){  
    digitalWrite(trigPin3, LOW);  
    digitalWrite(echoPin3, LOW);  
}  
void ldr(){  
    // on sensor pin and store it in lightVal  
    lightVal = analogRead(LDR);  
    if(lightVal>=526)  
    {  
        Serial.print("its bright outside");  
    }  
    else  
    {  
        Serial.print("its dark outside");  
    }  
    delay(500);  
}  
void temprature()
```



```
{  
  temp = analogRead(tempPin);  
  // read analog volt from sensor and save to variable temp  
  temp = temp * 0.48828125;  
  temp=temp-50;  
  Serial.println();// convert the analog volt to its temperature equivalent  
  Serial.print("TEMPERATURE = ");  
  Serial.print(temp);// display temperature value  
  Serial.print("*C");  
  Serial.println();  
  delay(500);  
}
```