**1)code to avoid walls using ultrasonic and ir sensor**

byte la=2,lb=3,ra=5,rb=4,trig=6,echo=7,ls=8,rs=9;

float duration=1,distance;

float d;

void setup() {

pinMode(la,OUTPUT);

pinMode(lb,OUTPUT);

pinMode(ra,OUTPUT);

pinMode(rb,OUTPUT);

pinMode(trig,OUTPUT);

pinMode(echo,INPUT);

pinMode(ls,INPUT);

pinMode(rs,INPUT);

Serial.begin(9600);

}

float dis(){

digitalWrite(trig,LOW);

delayMicroseconds(2);

digitalWrite(trig,HIGH);

delayMicroseconds(10);

digitalWrite(trig,LOW);

duration=pulseIn(echo,HIGH);

distance=duration\*(0.034/2);

Serial.print("distance =");

Serial.println(distance);

return distance;

delay(1000);

}

void drive(){

digitalWrite(ra,1);

digitalWrite(la,1);

digitalWrite(lb,0);

digitalWrite(rb,0);

}

void stoper(){

digitalWrite(ra,0);

digitalWrite(la,0);

digitalWrite(lb,0);

digitalWrite(rb,0);

}

void reverse(){

digitalWrite(ra,0);

digitalWrite(la,0);

digitalWrite(lb,1);

digitalWrite(rb,1);

}

void right(){

digitalWrite(ra,0);

digitalWrite(la,1);

digitalWrite(lb,0);

digitalWrite(rb,1);

}

void left(){

digitalWrite(ra,1);

digitalWrite(la,0);

digitalWrite(lb,1);

digitalWrite(rb,0);

}

void loop() {

d=dis();

drive();

if(d<=15)

{

if(digitalRead(ls)==1 && digitalRead(rs)==0)

{

stoper();

delay(1000);

reverse();

delay(1000);

right();

delay(500);

stoper();

}

else

if(digitalRead(rs)==1 && digitalRead(ls)==0)

{

stoper();

delay(1000);

reverse();

delay(1000);

left();

delay(500);

stoper();

}

else

{

stoper();

delay(1000);

reverse();

delay(1000);

right();

delay(2000);

}

}

else

if(digitalRead(ls)==1 || digitalRead(rs) ==1)

{

if(digitalRead(ls)==1)

{

stoper();

delay(1000);

reverse();

delay(1000);

right();

delay(500);

}

else

{

stoper();

delay(1000);

reverse();

delay(1000);

left();

delay(500);

}

}

}

<https://youtu.be/yKzZFUt4auw>

2)Digital moisture

int led\_pin1 =13;

int led\_pin2 =12;

int sensor\_pin =8;

void setup()

{

pinMode(led\_pin1, OUTPUT);

pinMode(led\_pin2, OUTPUT);

pinMode(sensor\_pin, INPUT);

}

void loop()

{

if(digitalRead(sensor\_pin) == HIGH)

{

digitalWrite(led\_pin1, HIGH);

digitalWrite(led\_pin2, LOW);

delay(2000);

}

else

{

digitalWrite(led\_pin1, LOW);

digitalWrite(led\_pin2, HIGH);

delay(2000);

}

}

<https://youtu.be/ZZYS55EEIUM>

3)LLED BLINKING WITH 3 SECONDS DELAY

int ledPin = 13;

void setup()

{

pinMode(ledPin, OUTPUT);

}

void loop()

{

digitalWrite(ledPin, HIGH);

delay(3000);

digitalWrite(ledPin, LOW);

delay(3000);

}

4)CONTROL SERVO MOTOR

a) control servo moving in one direction (0-180) then in reverse direction (180-0)

code:

**#include *//Servo library***

Servo servo\_test; *//initialize a servo object for the connected servo*

int angle = 0;

void **setup**() {

servo\_test.attach(9); *// attach the signal pin of servo to pin9 of arduino*

}

void **loop**() {

for(angle = 0; angle < 180; angle += 1) *// command to move from 0 degrees to 180 degrees* {

servo\_test.write(angle); *//command to rotate the servo to the specified angle* delay(15); }

delay(1000);

for(angle = 180; angle>=1; angle-=5) *// command to move from 180 degrees to 0 degrees* {

servo\_test.write(angle); *//command to rotate the servo to the specified angle* delay(5); }

delay(1000); }

b)servo control using a potentiometer

**#include *//Servo library***

Servo servo\_test; *//initialize a servo object for the connected servo*

int angle = 0;

int potentio = A0; *// initialize the A0analog pin for potentiometer*

void **setup**() {

servo\_test.attach(9); *// attach the signal pin of servo to pin9 of arduino*

}

void **loop**()

{

angle = analogRead(potentio); *// reading the potentiometer value between 0 and 1023*

angle = map(angle, 0, 1023, 0, 179); *// scaling the potentiometer value to angle value for servo between 0 and 180)*

servo\_test.write(angle); *//command to rotate the servo to the specified angle*

delay(5); }