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//Arduino Code for robot:
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//Code for Wall_E bot:

#include <Servo.h>

Servo myservo;


int Echo = A4; // These are the connections from the sensor to the Arduino.

int Trig = A5;


#define ENA 5

#define ENB 6

#define IN1 7

#define IN2 8

#define IN3 9

#define IN4 11

#define carSpeed 220 //The initial speed of the robot is set.

int rightDistance = 0, leftDistance = 0, middleDistance = 0;


void forward()  //The function to make the robot move forward.The robot moves forward at maximum speed if it senses no

{

  analogWrite(ENA, carSpeed);

  analogWrite(ENB, carSpeed);

  digitalWrite(IN1, HIGH);

  digitalWrite(IN2, LOW);

  digitalWrite(IN3, LOW);
```

```
  digitalWrite(IN4, HIGH);
  Serial.println("Forward");
}

void back()  // The function to make the robot stop.
{
  analogWrite(ENA, carSpeed);
  analogWrite(ENB, carSpeed);
  digitalWrite(IN1, LOW);
  digitalWrite(IN2, HIGH);
  digitalWrite(IN3, HIGH);
  digitalWrite(IN4, LOW);
  Serial.println("Back");
}

void left() // The function to make the robot turn left.
{
  analogWrite(ENA, carSpeed);
  analogWrite(ENB, carSpeed);
  digitalWrite(IN1, LOW);
  digitalWrite(IN2, HIGH);
  digitalWrite(IN3, HIGH);
  digitalWrite(IN4, LOW);
  Serial.println("Left");
}
```

```
void right()// The function to make the robot go right.
{
  analogWrite(ENA, carSpeed);
  analogWrite(ENB, carSpeed);
  digitalWrite(IN1, LOW);
  digitalWrite(IN2, HIGH);
  digitalWrite(IN3, HIGH);
  digitalWrite(IN4, LOW);
  Serial.println("Right");
}

void stop() // This function makes the robot stop when it is within 10 cm of an obstruction.
{
  digitalWrite(ENA, LOW);
  digitalWrite(ENB, LOW);
  Serial.println("Stop!");
}

int Distance_test() //This function is to read the distance by the robot.
 {
  digitalWrite(Trig, LOW);
  delayMicroseconds(5);
  digitalWrite(Trig, HIGH);
  delayMicroseconds(15);
  digitalWrite(Trig, LOW);
  float Fdistance = pulseIn(Echo, HIGH);
```

```
  Fdistance = Fdistance /  50;
  return(int)Fdistance;
}

void setup()  // This function is to initialize the pins and to connect the engines to the L298N H
//bridge
 {
  myservo.attach(3);
  Serial.begin(9600);
  pinMode(Echo, INPUT);
  pinMode(Echo, OUTPUT);
  pinMode(IN1, OUTPUT);
  pinMode(IN2, OUTPUT);
  pinMode(IN3, OUTPUT);
  pinMode(IN4, OUTPUT);
  pinMode(ENA, OUTPUT);
  pinMode(ENB, OUTPUT);
  stop();
}

void loop() // This function enables the robot to function as described.
{
  myservo.write(90);
  delay(1000);
  middleDistance = Distance_test();
```

```
  if(middleDistance <= 15)
{
  stop();
  delay(500);
  myservo.write(10);
  delay(1000);
  rightDistance = Distance_test();

  delay(1000);
  myservo.write(90);
  delay(1000);
  myservo.write(180);
  delay(1000);
  leftDistance = Distance_test();

  delay(1000);
  myservo.write(90);
  delay(1000);
  if(rightDistance > leftDistance)
 {
    right();
    delay(500);
  }
  else if(rightDistance < leftDistance)
{
    left();
```

```
    delay(500);
  }
  else if((rightDistance <= 15) || (leftDistance <= 15))
{
    back();
    delay(250);
  }
  else
 {
   forward();
  }
  }
  else
 {
    forward();
  }
}
```