L&Tproject

Title:

AutomatedDustbinsystem

Problemstatement:

DevelopasimpleArdunioUNO-basedAutomaticdustBinsystemwhichcanopenthelid whenitsensestheobjectmovementnearby.

Scopeofthesolution:

The core objective of the **Arduino Smart Dustbin** is to detect thepresence and open the dustbin, later after the trash is put we have to close it.In a previous project , we used a Ultrasonic sensor that could spot objects,andwhenitdid,therobotchangeditsroutetofollowtheobject(ourhuman). Inour**SmartDustbinArduinoproject**,wetheredoingsomethingsimilar.Wehave put Ultrasonic sensor on top of the dustbin's cover. So, when the sensorseessomethinglikeaperson'shand,ittellstheArduinotoopenthelid.

Requiredcomponentstodevelopsolution:

1xArduinoUno

1xUltrasonicsensorJ

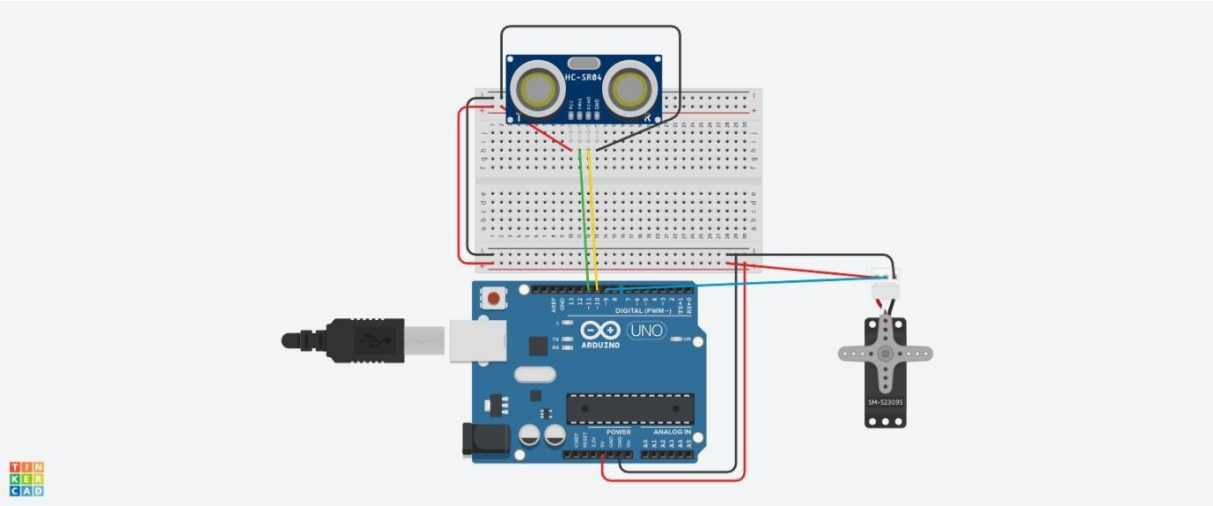
umper wires

1 x

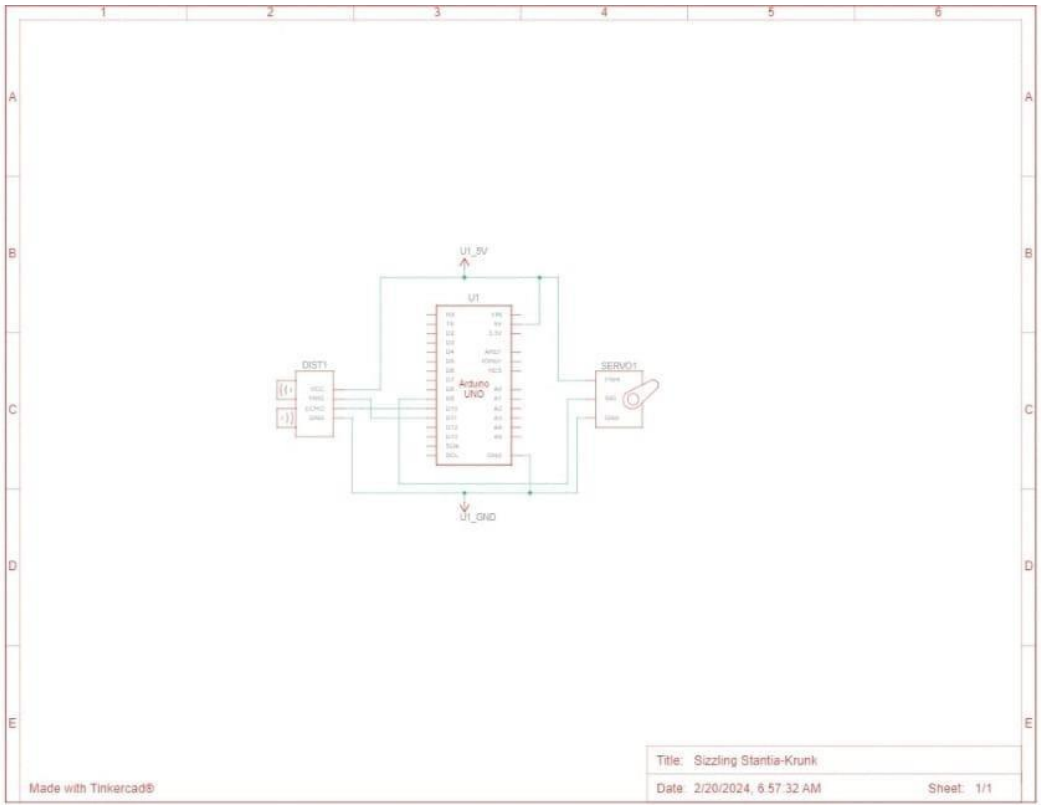
Breadboard1xS

ervomotor

Simulatedcircuit:



GerberFile:



Codeforthesolution:

//C++code

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//

#include

<Servo.h>Servomy

Servo;

#define trigPin 11 // Trig pin of the ultrasonic sensor connected todigitalpin9

#defineechoPin10//Echopinoftheultrasonicsensorconnectedtodigitalpin10

```
void setup()
  {Serial.begin(9600)
  ;
  pinMode(trigPin,
  OUTPUT);pinMode(echoPi
  n,INPUT);
   myServo.attach(9);//Attachtheservotodigitalpin9
}

voidloop(){
  longduration,distance;

  //Triggertheultrasonicsensorbysendinga10µspulsedigitalWrite(trigPi
  n,LOW);
  delayMicroseconds(2);digi
  talWrite(trigPin,
  HIGH);delayMicroseconds(
  10);digitalWrite(trigPin,LO
  W);

  //Measurethepulsedurationontheechopinduration=pu
  lseIn(echoPin,HIGH);

  //Calculatethedistancebased
onthespeedofsound(343meters/secondor0.0343cm/microsecond)
  distance=duration *0.0343/2;
```

```
  //PrintthedistancetotheSerialMonitorSerial
  .print("Distance: ");Serial.print(distance);
  Serial.println("cm");
  delay(1000);//Adjustthedelaytimebasedonyourapplication


if(distance<=20)
{
    for(intangle=0;angle<=180;angle+=1){myServo.write(90);
    delay(15);//Adjustthedelayforsmoothermovement
  }
}
  else
  {
    for (int angle = 90; angle >= 0; angle -= 1)
    {myServo.write(0);
    delay(10);//Adjustthedelayforsmoothermovement
  }
  //digitalWrite(Buzzer,LOW);
  }
```

}

GitHublink: