

Touchless trash can

Introduction

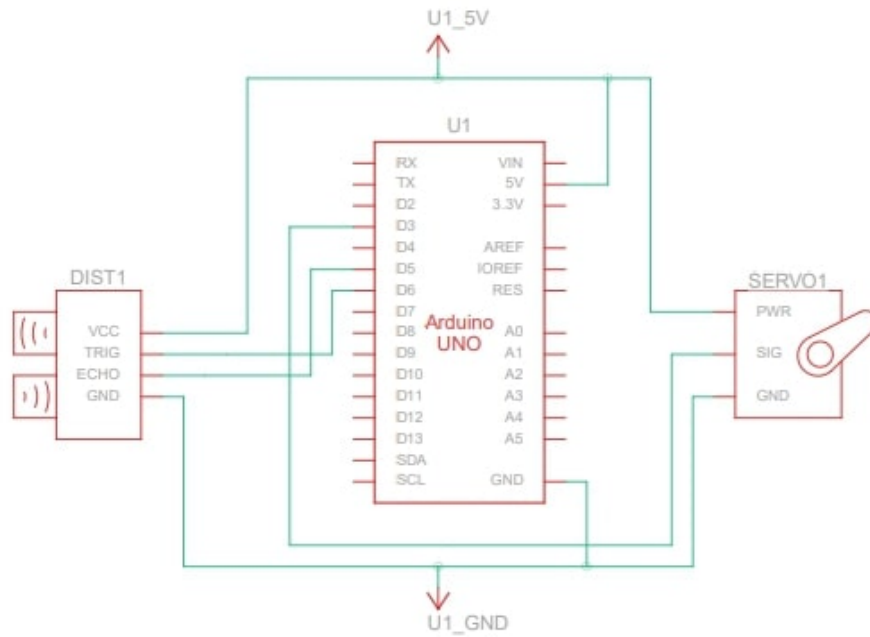
- A touchless automatic motion sensor trash can.
- You do not have to touch any part of the trash bin just to open and close it.
- No contact trash can means lesser chance on contaminating yourself with disease-causing bacteria and viruses
- they are actually quite practical. They open and close automatically, keeping germs and related shmutz off your hands. Those with mobility problems may find the automatic feature more convenient than foot-operated models.

General description

Open The Lid Automatically Without Touching the Bin

With a motion sensor trash, you will automatically open and close the lid of the bin without needing to touch the bin physically. When the infrared motion sensor detects the motion of your hand or foot, the lid opens automatically.

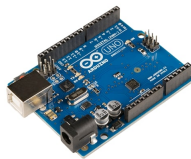
Schematic View :



Hardware Design

Components :

- Arduino Uno



- Servo motor



- HC-SR04 ultrasonic sensor



- Servo arms



- Dupont Wire



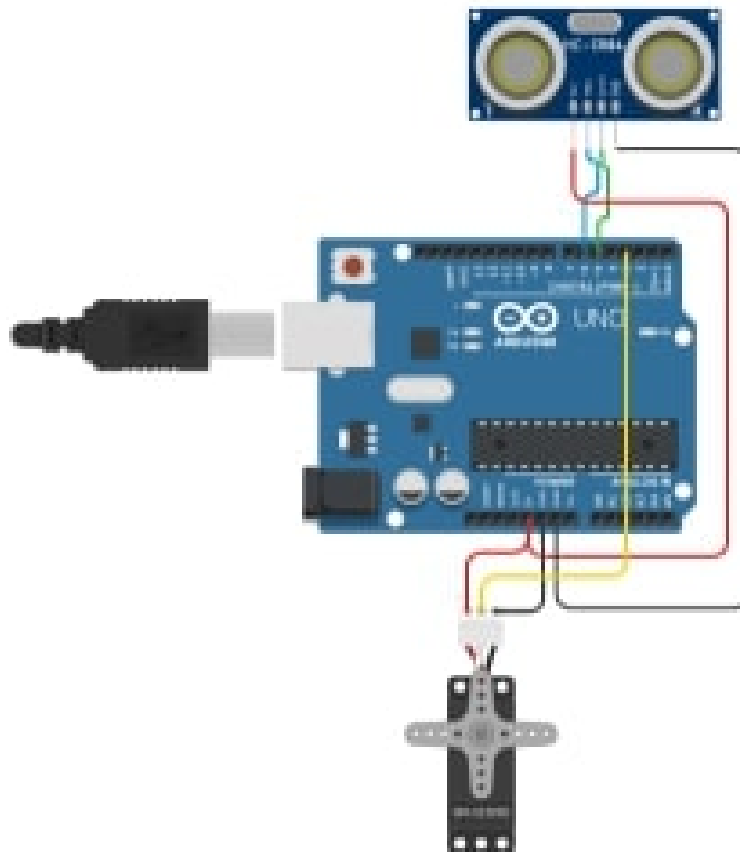
- cardboard



- glue gun



Schema :



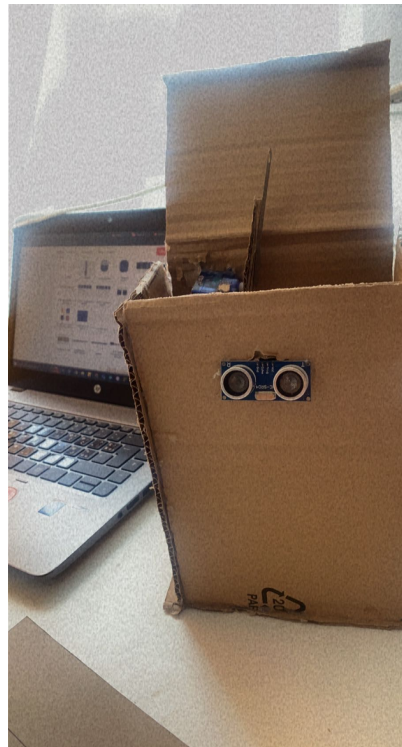
Software Design

Development environment:



```
pm_project_fatima_ousni $  
#include<Servo.h>  
Servo servo;  
int const trigPin = 6;  
int const echoPin = 5;  
void setup()  
{  
  pinMode(trigPin, OUTPUT);  
  pinMode(echoPin, INPUT);  
  servo.attach(3);  
}  
void loop()  
{  
  int duration, distance;  
  digitalWrite(trigPin, HIGH);  
  delay(1);  
  digitalWrite(trigPin, LOW);  
  // Mesurer l'entrée d'impulsion dans la broche d'écho  
  duration = pulseIn(echoPin, HIGH);  
  // La distance est la moitié de la durée divisée par 29,1 (de la fiche technique)  
  distance = (duration/2) / 29.1;  
  // si la distance est inférieure à 0,5 mètre et supérieure à 0 (0 ou moins signifie hors de portée)  
  if (distance <= 50 && distance >= 0) {  
    servo.write(50);  
    delay(3000);  
  } else {  
    servo.write(160);  
  }  
  // Attendre 1 second  
  delay(60);  
}
```

Obtained results





Demo : Youtube link <https://www.youtube.com/shorts/2PNN2nO6K24>

Conclusion

the project is ready! after the covid pandemic you won't need to touch things anymore. especially the trash bin!

Download

source code : [touchless_automatic_motion_sensor_trash_can_-_arduino_project_hub.rar](#)

PDF electrical diagram: [start_simulating.pdf](#)

Jurnal

19/04/2021 - Realization of electrical diagram

21/04/2021 - Publication of the page and creation of the block diagram

06/05/2021 - simulation on Tinkercad

22/05/2021 - Data from sensors is successfully collected and processed

Bibliografie/Resurse

<https://ocw.cs.pub.ro/courses/pm/lab/lab0>

<https://create.arduino.cc/projecthub/abdularbi17/ultrasonic-sensor-hc-sr04-with-arduino-tutorial-327ff6>

<https://docs.arduino.cc/learn/electronics/servo-motors/>

<https://www.arduino.cc/reference/en/libraries/servo/>

<https://www.arduino.cc/reference/en/libraries/hcsr04-ultrasonic-sensor/>

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