SUKKUR INSTITUTE OF BUSINESS ADMINSTRATION UNIVERSITY

DEPARTMENT OF COMPUTER SYSTEM ENGINEERING

CEW PROJECT: SMART DUSTBIN USING ARDUINO UNO

SUBMITTED BY:

NAME: SOYAM KAPOOR

CMS ID: 133-22-0041

INSTRUCTOR:

ENGINEER IRFAN BABAR

PROJECT REPORT: SMART DUSTBIN USING ARDUINO UNO

SIGNATURE OF INSTRUCTOR_____

SIGNATURE OF HOD_____

CERTIFICATE

It is certified that SOYAM KAPOOR a student of BE-I from Computer system Engineering Department has carried out the necessary work of Computer Engineering Workshop as per course of studies prevailed at the Computer System Engineering Department, Sukkur Institute of Business Administration for FALL-2022.

Date: _____ Instructor Signature: _____

TABLE OF CONTENTS

CONTENTS

ACKNOWLEDGEMENT

The success and outcome of this project were only possible by the guidance and support from my Favourite teacher. I am privileged to have got this along with the achievement of my project. It required a lot of effort from him and I would like to thank him.

I appreciate and thank Sir Irfan Babar for granting me an opportunity to do this project activity in our Computer Engineering Workshop Course and providing us will all motivation, support and leadership. I am really thankful to him for presenting such excellent support and guidance, despite having a busy schedule.

I heartily like to thank Mr: Tahir Abbas Shaikh who helped me to complete the project.

I am thankful for and lucky enough to get consistent encouragement support and supervision from all Teaching staff of Computer System Engineering Department.

ABSTRACT

In this project I'm going to make a ***"SMART DUSTBIN"***

In which I'm going to use Arduino Uno "A programmable board", Arduino IDE "Arduino Software" for Coding, Jumper Wires to connect ultrasonic sensor and servomotor with Arduino Uno, An Ultra Sonic Sensor HC-SR04 to detect the object, A servo motor which is used to open and close the lid of the dustbin.

CHAPTER I: INTRODUCTION

This project is made by Soyam Kapoor, Student of 1st Semester, Course Computer Engineering Workshop, Department of Computer System Engineering (BE-CSE-I).

? Most of the cities, town sand village in Pakistan are not well designed to facilitate the suitable garbage collection methods.

? Common Public dustbins are filling over with the garbage and no one is concerned to clear up them as and when they get completely packed with overflowing garbage.

? Keeping in view of this big problem, it will be a good suggestion to do something to deal with this unmanaged waste and from this, the concept of “Smart Dustbin” came out.

Thanks to Eng. Irfan Ali Babar for His contribution and Co-operation with us.

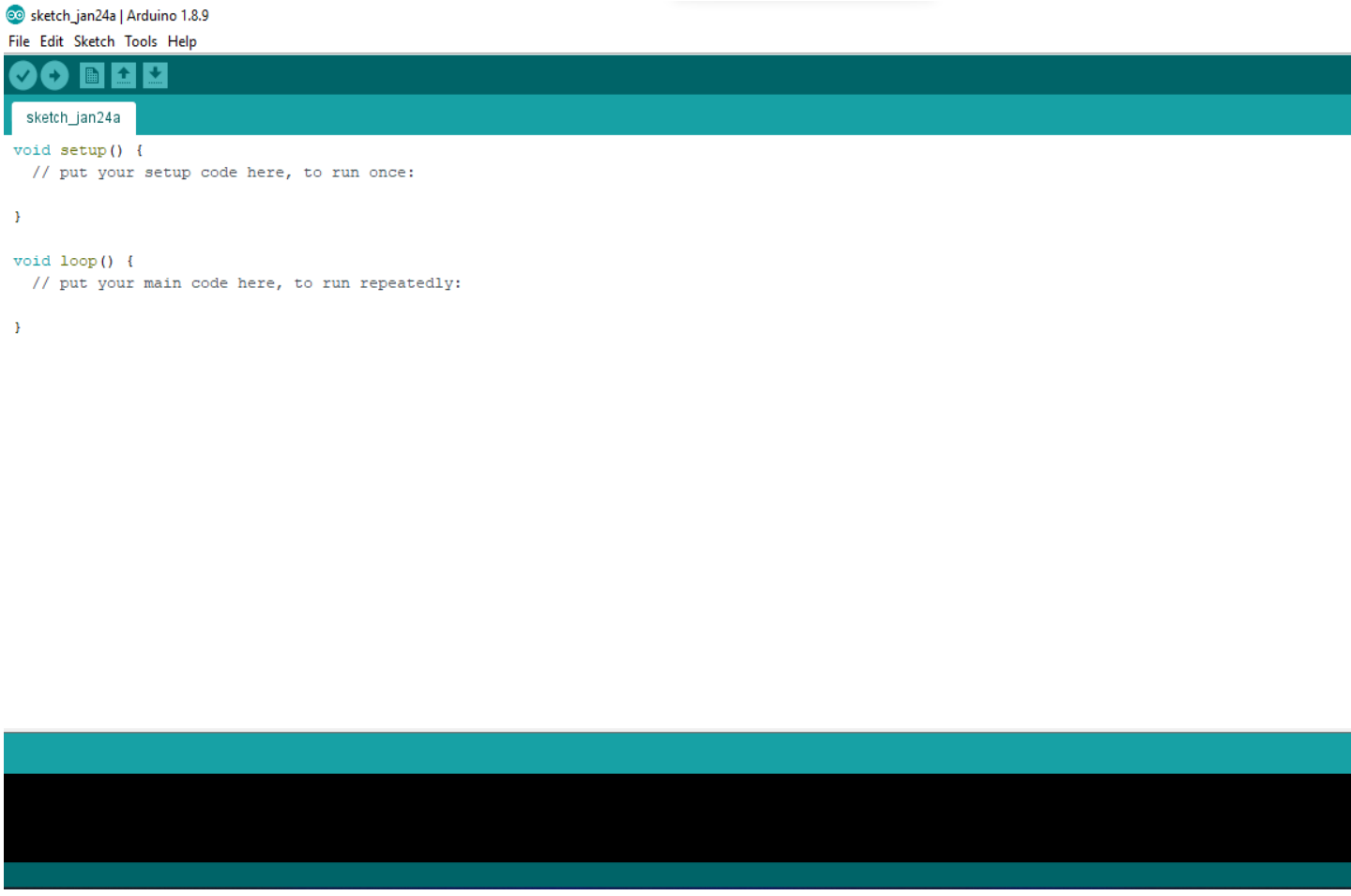
CHAPTER II: LIST OF EQUIPMENTS

- Arduino Uno
- Arduino Cable
- Jumper Wires
- A dustbin box
- Ultra-Sonic Sensor HC-SR04
- Servo Motor
- Glue Gun
- A stick

CHAPTER II: SOFTWARE

In this project I'm using Arduino IDE which is used to write the code in Arduino.

ARDUINO IDE



SMART DUSTBIN CODE:

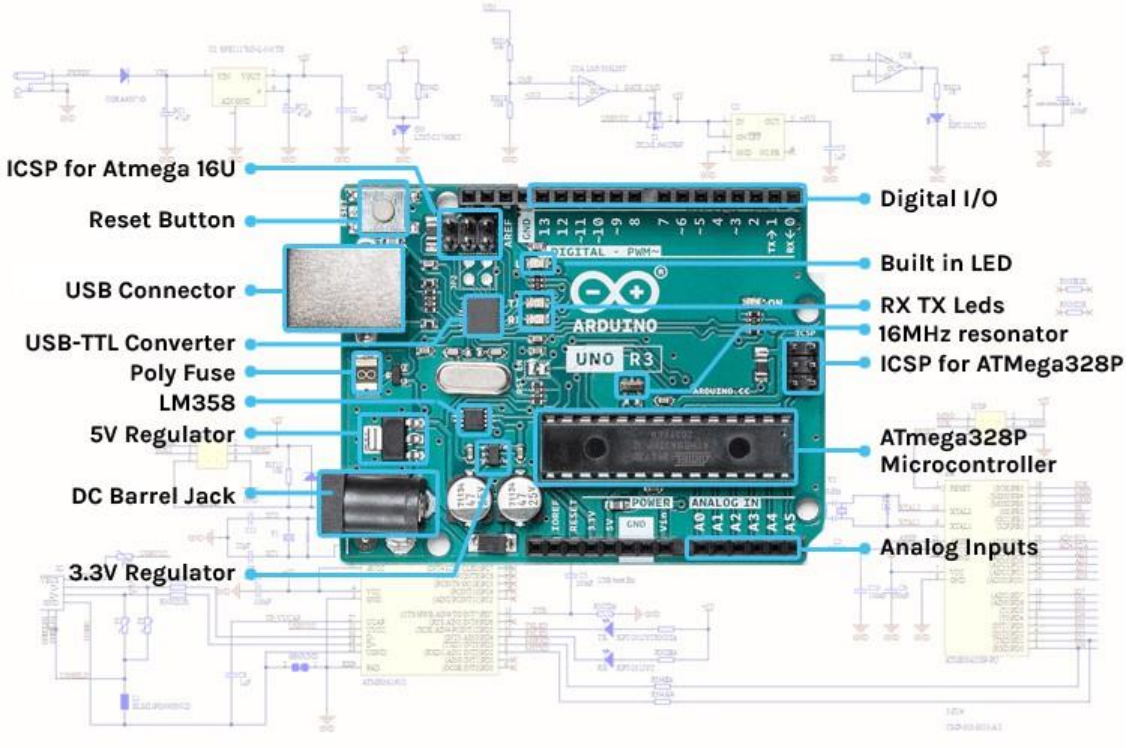
```
#include <Servo.h>    //including library
Servo servo;          //initialization of servo
int trigPin = 9;//initialization of trig pin
int echoPin = 10;//initialization of echo pin
int pos = 0;//initialization of position
long duration, distance;
int a = 0;
void setup() {
  servo.attach(11);           //initialization of servo pin
  pinMode(trigPin, OUTPUT);   //declare trigpin as an OUTPUT
  pinMode(echoPin, INPUT);    //declare echopin as an INPUT
  Serial.begin(9600);
  servo.write(0);
}

void loop() {
  digitalWrite(trigPin, LOW);//trigpin will be low in the beginning
  delayMicroseconds(2);//delay of 2microseconds
  digitalWrite(trigPin, HIGH);//trigpin will be high
  delayMicroseconds(10);//delay of 10microseconds
  digitalWrite(trigPin, LOW);//set trigpin to low
  duration = pulseIn(echoPin, HIGH);
  distance = (duration / 2) / 29.1;
  Serial.println(distance);//Print distance in Serial monitor


  if (distance <50 )//if distance is less than 30
  {
    servo.write(120);// Set servo angle to 150 degree
    a = 1;
    delay(3000);//delay for  how much time it will open
  }
  else {
    if (a == 1) {
      for (pos = 120; pos >= 0; pos -= 1) {
        servo.write(pos);
        delay(10);
      }
      a = 0;
    }
  }
  delay(100);
}
```

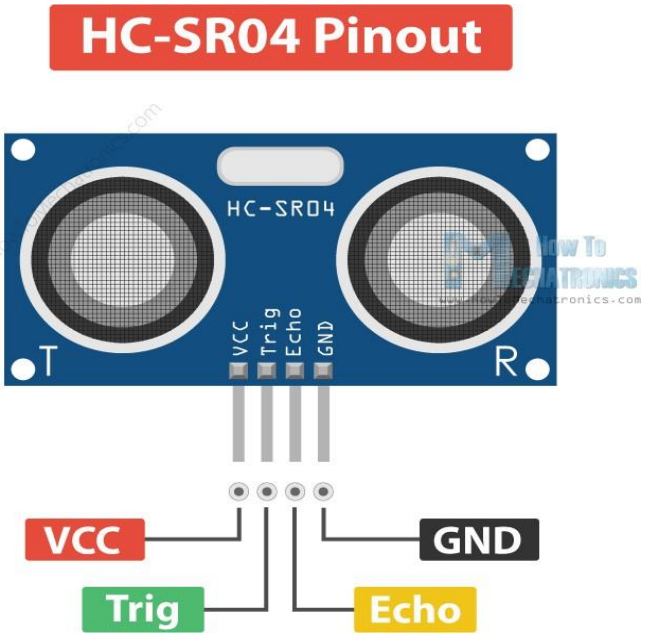
CHAPTER II: HARDWARE

Arduino Uno

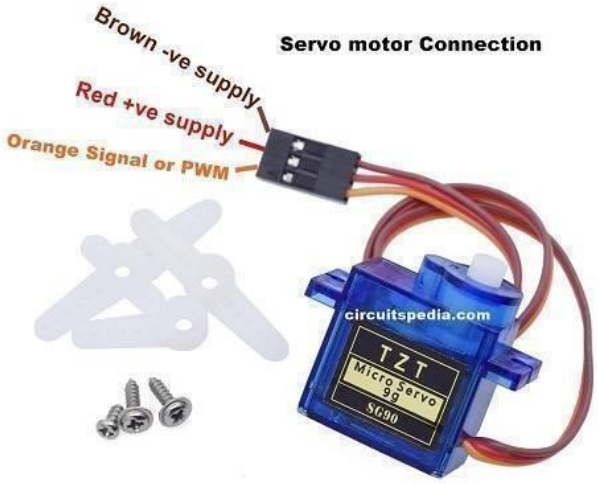


- Arduino Cable

- Ultra-Sonic Sensor HC-SR04



- Servo Motor

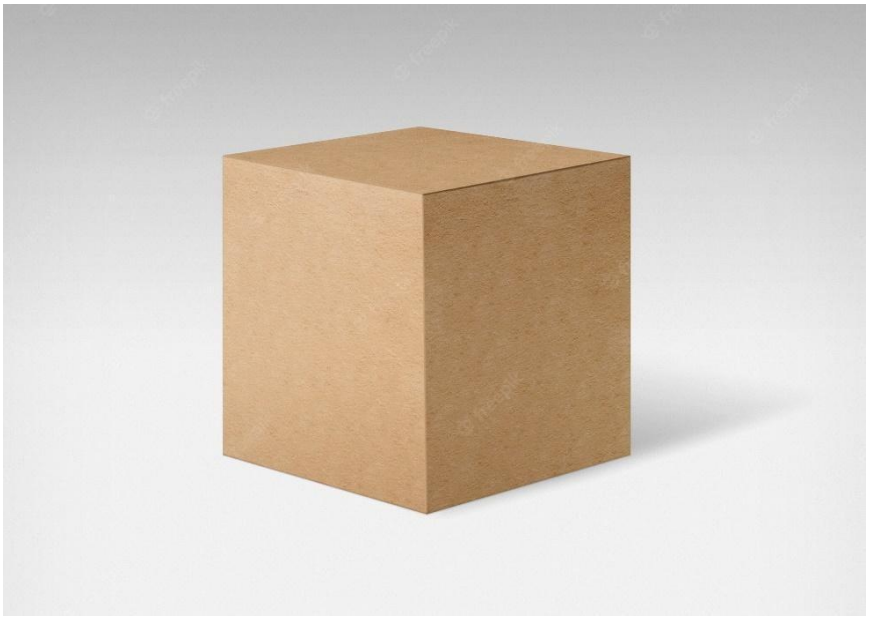


Jumper Wires

- Glue-Gun

- Stick

- A Box



Result:

Conclusion:

Smart Dustbin using Arduino will help people to dispose garbage without touching the dustbin and the lid also remains closed to avoid flies.

Smart_dustbin_By_Soyam

```
#include <Servo.h>    //including library
Servo servo;          //initialization of servo
int trigPin = 9;//initialization of trig pin
int echoPin = 10;//initialization of echo pin
int pos = 0;//initialization of position
long duration, distance;
int a = 0;
void setup() {
  servo.attach(11);            //initialization of servo pin
  pinMode(trigPin, OUTPUT);   //declare trigpin as an OUTPUT
  pinMode(echoPin, INPUT);   //declare echopin as an INPUT
  Serial.begin(9600);
  servo.write(0);
}

void loop() {
  digitalWrite(trigPin, LOW);//trigpin will be low in the beginning
  delayMicroseconds(2);//delay of 2microseconds
  digitalWrite(trigPin, HIGH);//trigpin will be high
  delayMicroseconds(10);//delay of 10microseconds
  digitalWrite(trigPin, LOW);//set trigpin to low
  duration = pulseIn(echoPin, HIGH);
  distance = (duration / 2) / 29.1;
  Serial.println(distance);//Print distance in Serial monitor


  if (distance <50 )//if distance is less than 30
  {
    servo.write(120);// Set servo angle to 150 degree
    a = 1;
    delay(3000);//delay for  how much time it will open
  }
  else {
    if (a == 1) {
      for (pos = 120; pos >= 0; pos -= 1) {
        servo.write(pos);
        delay(10);
      }
      a = 0;
    }
  }
  delay(100);
}
```

THANKYOU SO MUCH ☺