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BRANCH-CSBS
FIRST YEAR
RCS RECRUITMENT PROJECT

AUTOMATIC DRAINAGE CLEANING SYSTEM

PROJECT STATEMENT :

The aim of the project is to develop a real life model using the components taught to us which can be used in day to day life to make the work simpler to the mankind. It is mainly to solve the problem of the common poor people in our area.

REAL TIME USAGE OF THE PROJECT:

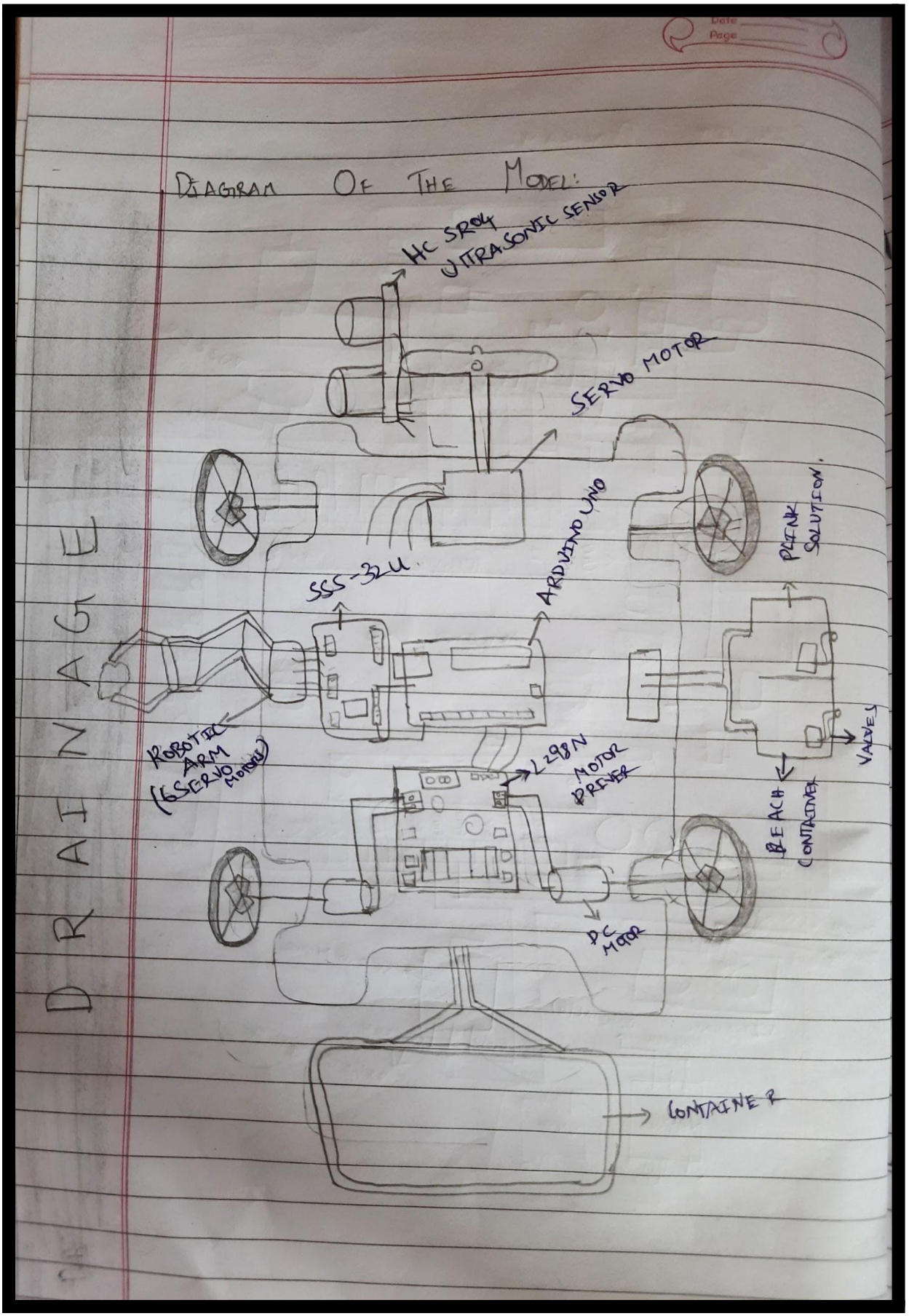
- My project is beaded on the automatic drainage cleaning system.
- This project can be used to check the water level, dust level in the drainage system.
- It is used to bleach the drainage path and add fragrance to the same. So that the drainage is clean and smells good.

- It is an entire compilation of 4 to 6 workers work at a time.

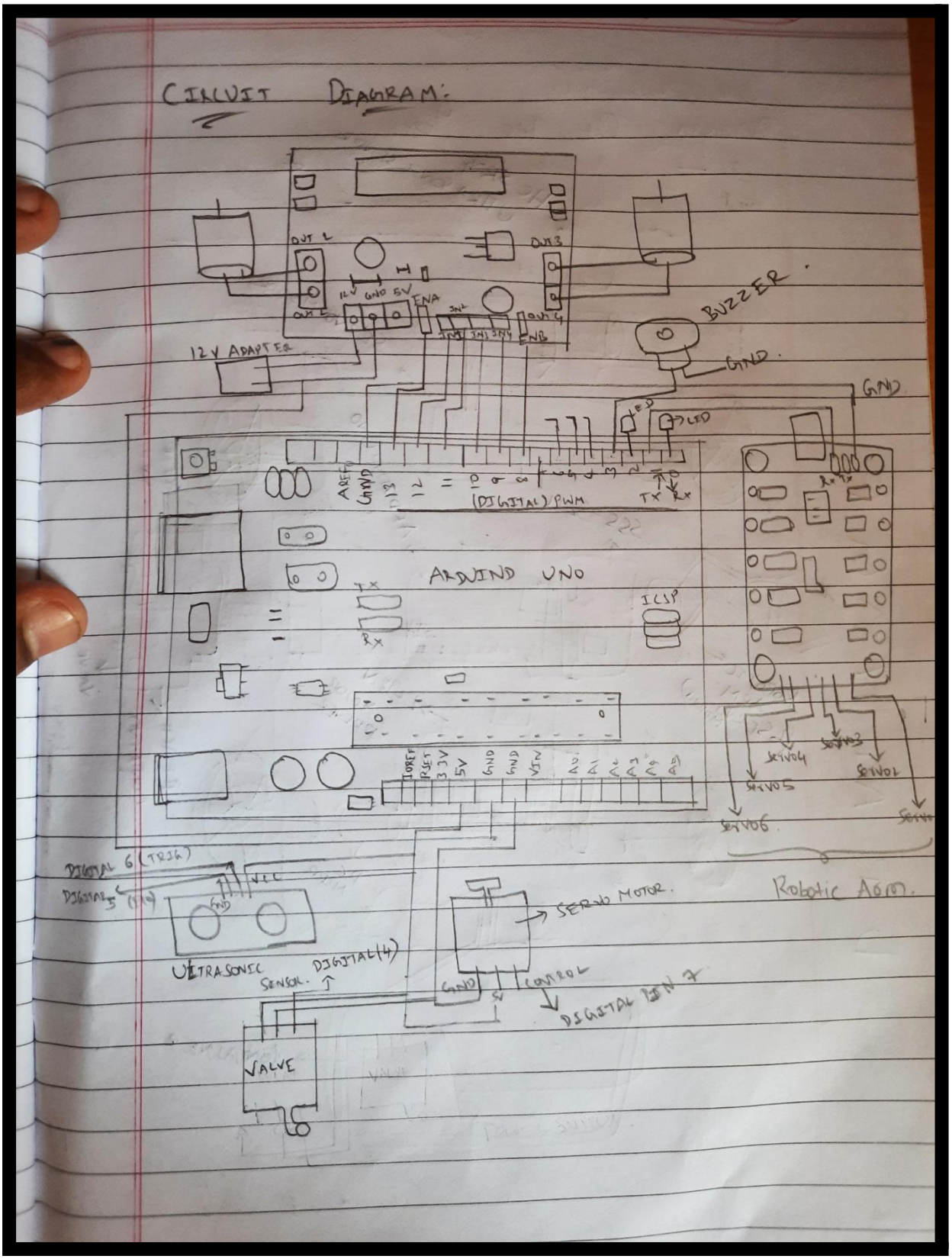
COMPONENTS USED:

1CHASSIS KIT
1 ARDUINO UNO
1SSC 32 U BOARD
A L298N MOTOR DRIVER
2DC MOTORS
7 SERVOMOTORS
2LED
ULTRASONIC SENSOR
VALVES
A BUZZER

DIAGRAM OF THE MODEL:



CIRCUIT DIAGRAM:



WORKING OF THE PROJECT:

- In the beginning the system moved by using a L298n motor driver. The direction and speed of motor can be controlled using it

- At a particular point, when we stop, we are going to use the sensor, the servomotor is used to move the sensor by 180degree. Then at the drainage canal the ultrasonic sensor stops and the sensor senses the level of water in it. If the water is at low level no led glows, if the water is at medium level one led glows if the water is at the highest level two led glows and a buzzer rings a warning sound.

- It means the drainage is to be immediately cleaned. So here comes the robotic arm to clean the drainage. To make a robotic arm we need 6servomotors to make the cleaning process. So once the connection is done and the code is written in Arduino

IDE. The waste can be lifted using the arm

- Once the waste particles is lifted the arm will put in the container which is at the backside of the system

- There is another speciality in the system not only cleaning but also sanitation and bleaching is done by this machine

- The other side of the system consists of a container with valves at the bottom of it. Whenever the system is moving the valves tend to open and close for every one second to bleach the area

- The container is partitioned into two. One party has bleaching powder and the other day the solution of plink tablet solution.

- Bleaching powder is used for killing the germs and plink solution is used for the good fragrance of the surrounding.

Additional setup:

- Another ultrasonic sensor can be attached at the backside above the container at a particular level and once the dust level is very high in the container , the buzzer rings once again and the container moves upside down to put the waste in a composite pit which is located at the a particular place

CODE:

```
#include<servo.h>
Servo myservo;
Const int echopin=5;
Const int trigpin=6;
Const int buzzer=3;
Int valvepin=4;
```

```
int ledA=0;
int ledB=2;
int a=2;
Int b = 4;
Int c= 6;
// Motor A connections
Int enA =13;
Int in1 = 12;
Int in2 = 11;
// Motor B connections
Int enB = 8;
Int in3 = 10;
Int in4 = 9;
Void setup()
Pinmode(buzzer,OUTPUT);
Myservo.attach(7,600,2300);
Pinmode(ledA,OUTPUT);
Pinmode(ledB,OUTPUT);
Digitalwrite(ledA,Low);
Digitalwrite(ledB,Low);
```

```
Pinmode(valvepin,OUTPUT);
pinMode(enA, OUTPUT);
pinMode(enB, OUTPUT);
pinMode(in1, OUTPUT);
pinMode(in2, OUTPUT);
pinMode(in3, OUTPUT);
pinMode(in4, OUTPUT);


digitalWrite(in1, LOW);
digitalWrite(in2, LOW);
digitalWrite(in3, LOW);
digitalWrite(in4, LOW);
Void loop ()
directionControl();

      delay(1000);

speedControl();
```

```
    delay(1000);


Void directionControl() {

// directions can be changed using this
    digitalWrite(in1, LOW);
    digitalWrite(in2, HIGH);
    digitalWrite(in3, LOW);
    digitalWrite(in4, HIGH);
    delay(2000);
}
Void speedControl() {
    for (int i = 0; i < 256; i++) {
        analogWrite(enA, i);
        analogWrite(enB, i);
        delay(20);
}
}
Myservo.write(90);
```

```
Delay(2000);
Digitalwrite (trigpin,HIGH);
Delay(20);
Digitalwrite (trigpin,LOW);
Pinmode(echopin,INPUT);
Duration=pulseIN(echo,HIGH);
Metre=microsecondstometres(duration);
Serial.print(metre);
Serial.print(“metre”);
Delay(1000);
If(metre<=a){
Digitalwrite (ledA, LOW);
Digitalwrite (ledB, LOW);
}
elseIf(metre<=b){
Digitalwrite (ledA, HIGH);

Digitalwrite (ledB, LOW);
}
ElseIf(metre<=c)
```

```
{
Digitalwrite (ledA, HIGH);
Digitalwrite (ledB, HIGH);
Tone(buzzer,1000);
Delay(1000);
Notone(buzzer);
Delay(1000);
```

Here is the code for the robotic arm -ssc32u

Servo motor-------Pin

a----------16

b----------19

c----------20

d----------15

e----------4

f ----------7

Algorithm:

- MOTOR C MOVES UP
- MOTOR D MOVES FORWARD

- MOTOR E MAKES THE ARM MOVE DOWN
- MOTOR F CATCHES THE WASTE
- MOTOR B ROTATES TO TAKE THE WASTE INTO THE CONTAINER
- MOTOR F RELEASES THE WASTE INTO THE CONTAINER

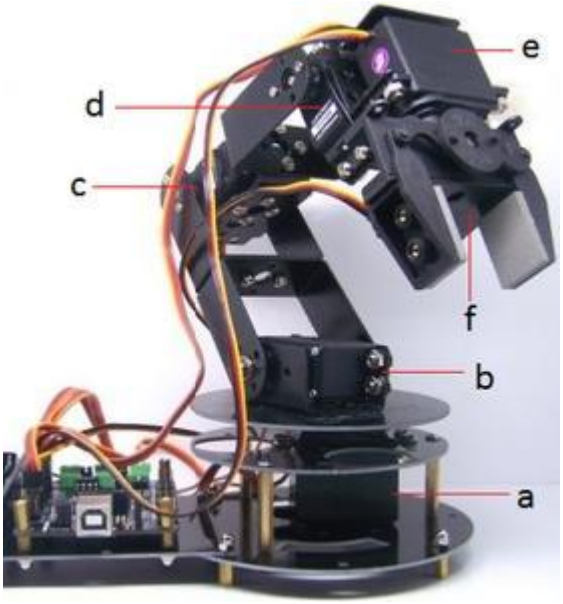
}

\\valve control

```
Digitalwrite (valvepin,HIGH);
Delay(1000);
Digitalwrite (valvepin,LOW);
Delay(1000);
}
}
```

SOME RELEVANT PICTURES TO MY PROJECT:

1.Robotic arm



2.

DRAINAGE SYSTEM IN OUR AREA’S:

REFERENCES:

https://www.google.com/amp/s/www.instructables.com/Arduino-Robot-Arm/%3famp_page=true

https://www.tutorialspoint.com/arduino/index.htm

CONCLUSION:

By using my project, I hope the major problems faced by many people in my area as well as people around the country with the same problem can be solved. Mahatma Gandhi's saying was that we must be disciplined which includes cleaning our own toilets and this enghlitned me that it is not only cleaning toilets but also the drainage canals which must be cleaned by us. It is one of the pathogenic as well as disgusting job done by our brothers(cleaners). Salute to all of them . So to help them at the most possible way I

thereby created this automatic drainage cleaning system.