SVKM'S NMIMS Deemed-to-be UNIVERSITY

# MUKESH PATEL SCHOOL OF TECHNOLOGY AND MANAGEMENT

## ANDROID CONTROLLED ROBOT

*-A prototype of wheelchair specially for handicapped*


***Team Members :-***

**Pooja Patel(I.T.)**

**Aaradhana Khairnar(I.T.)**

**Divya Dindorkar (E.X.T.C.)**

***GUIDE :-***

**Mr. Piyush Soni**

**Mrs. Chayyadevi**

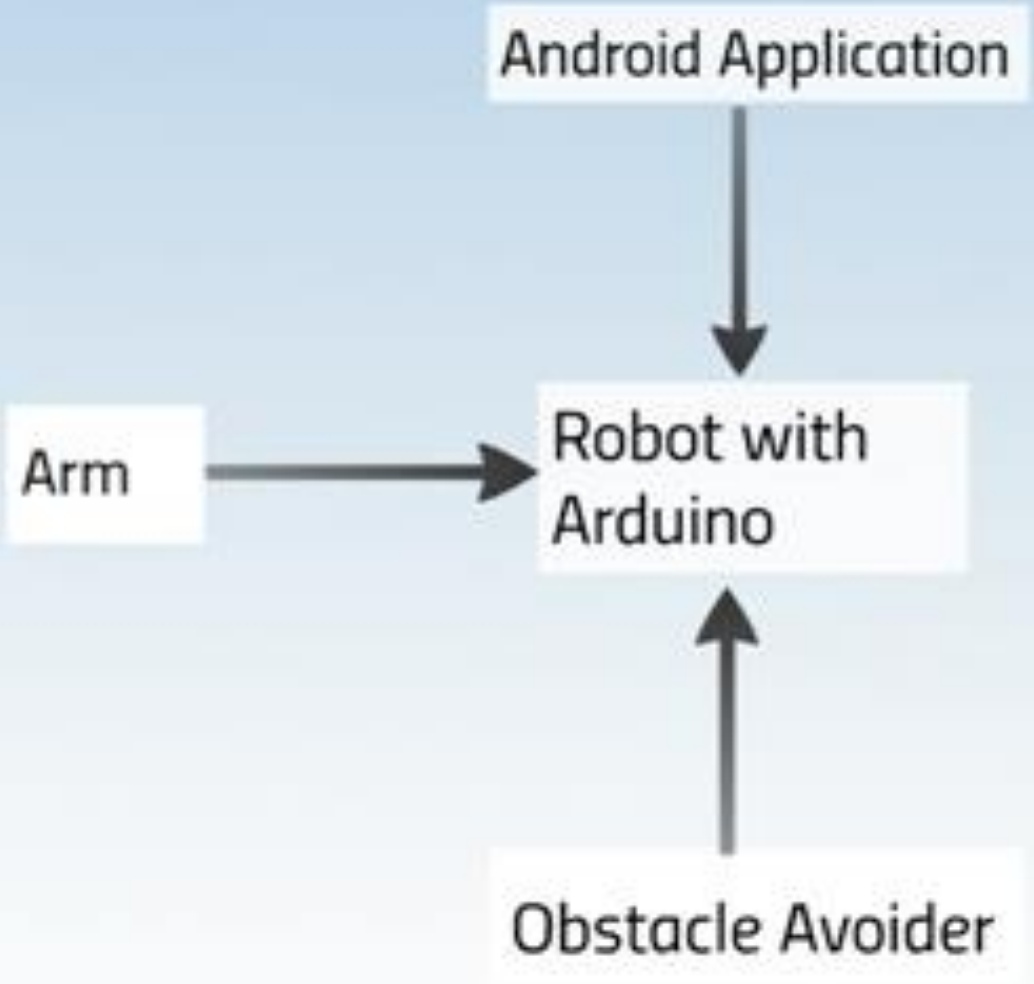
**Mr. Rahul Koshti**

# INDEX

# INTRODUCTION

- A prototype of wheelchair specially for handicapped people who can't move their wheelchair by their own.
- An app can control their wheelchair according to their requirement.
- Obstacle avoider to save them from getting hurt.
- Arm to help them pick and place up things from one place to another.

## BLOCK DIAGRAM



# Working

**Android application**

- App with the functionality of controlling the movement of robot and the arm of robot

**ARM**

- It will have the functionality of pick and place

**ARDUINO**

- It is a microcontroller which has inbuilt components and easy to use

**BLUETOOTH**

- Used as the medium of communication between app and arduino

**OBSTACLE DETECTOR**

- Used to detect the obstacles by using IR sensors

**MOTOR DRIVER MODULE**

- Used to interface DC motor and arduino

# ESTIMATED COST OF PROTOTYPE

- Arduino uno : 700/-
- Bluetooth module : 350/-
- IR sensors : 150 /-
- Motor driver module : 150 /-
- Arm with chassis : 2000 /-
- Passive components : 100 /-
- Extra charges : 300 /-
- **Total cost : 4000** /-

# SCHEDULE OF WORK

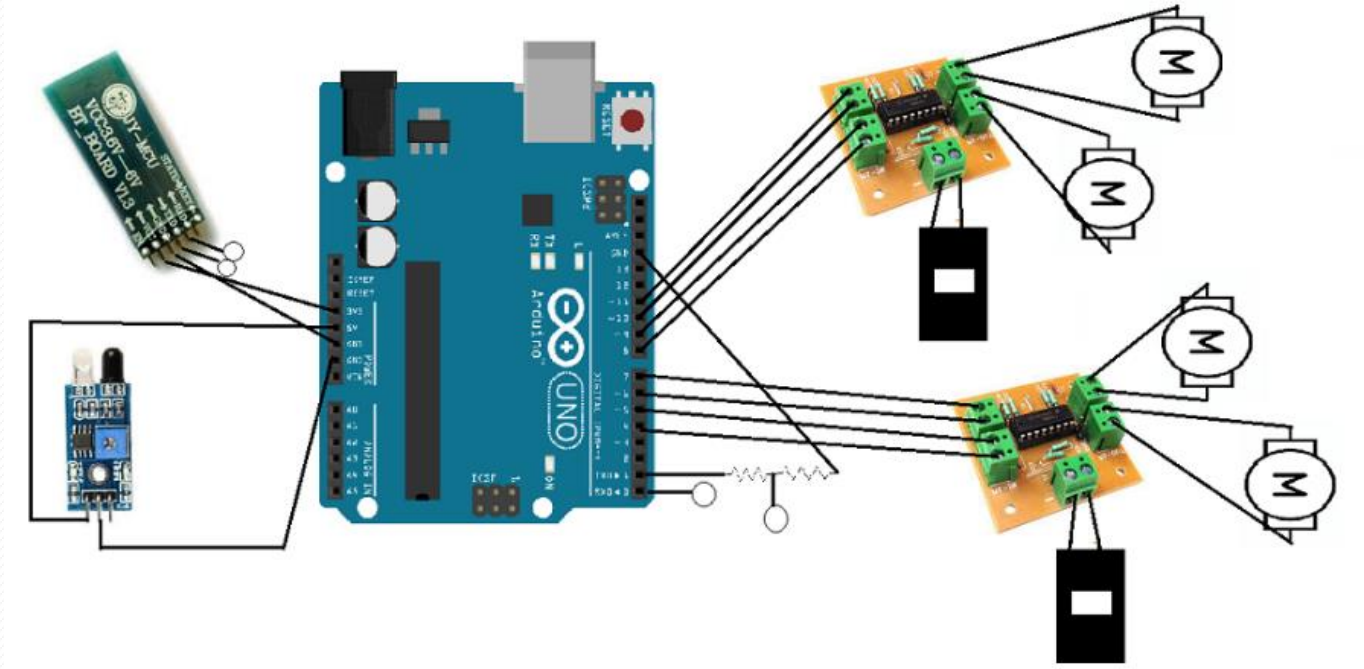
- **AUGUST :** Decided project title and analyzed the requirements
- **SEPTEMBER :** Revised android and studied arduino
- **OCTOBER-NOVEMBER :** SRS ,synopsis and report and Studied eclipse
- **DECEMBER** : Arduino coding
- **JANUARY - FEBRUARY :** Complete hardware connections.
- **MARCH** : Eclipse coding
- **APRIL :** Robot controlled by app [A complete prototype]

# Advantages

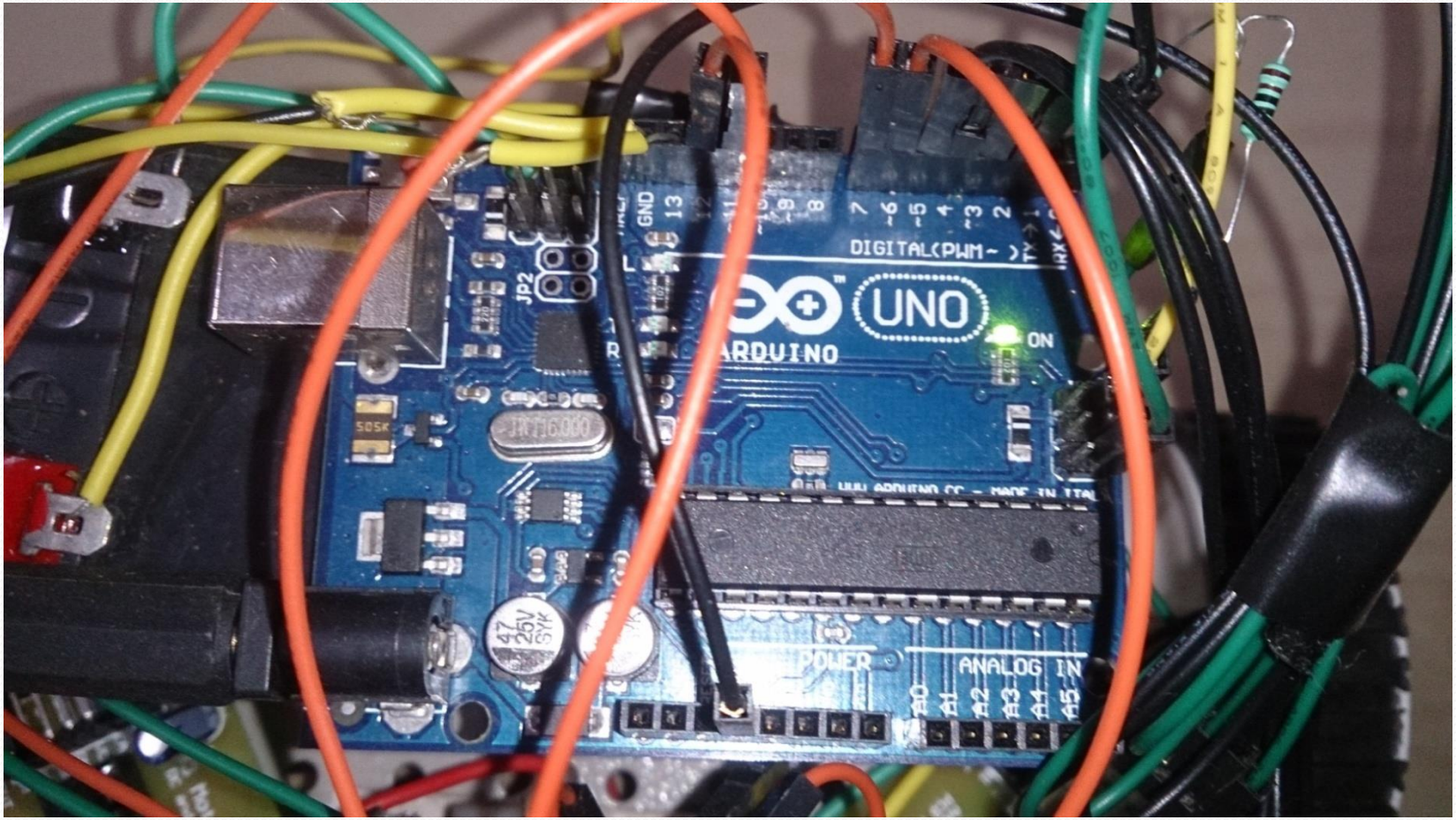
- Obstacle avoiding capability
- Pick and place functionality
- Will be controlled according to our requirement
- Easy to make changes
- Reduces labor work
- Due to arduino, less connections are required
- Integrated functionalities

# IMPLEMENTATION

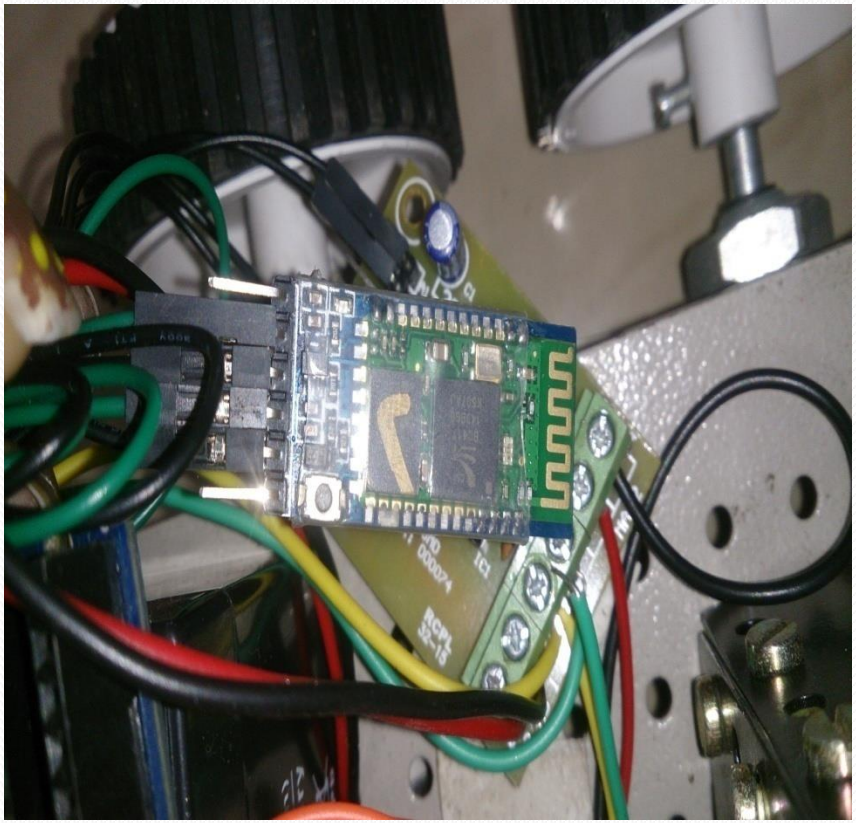
# 1. Circuit Diagram

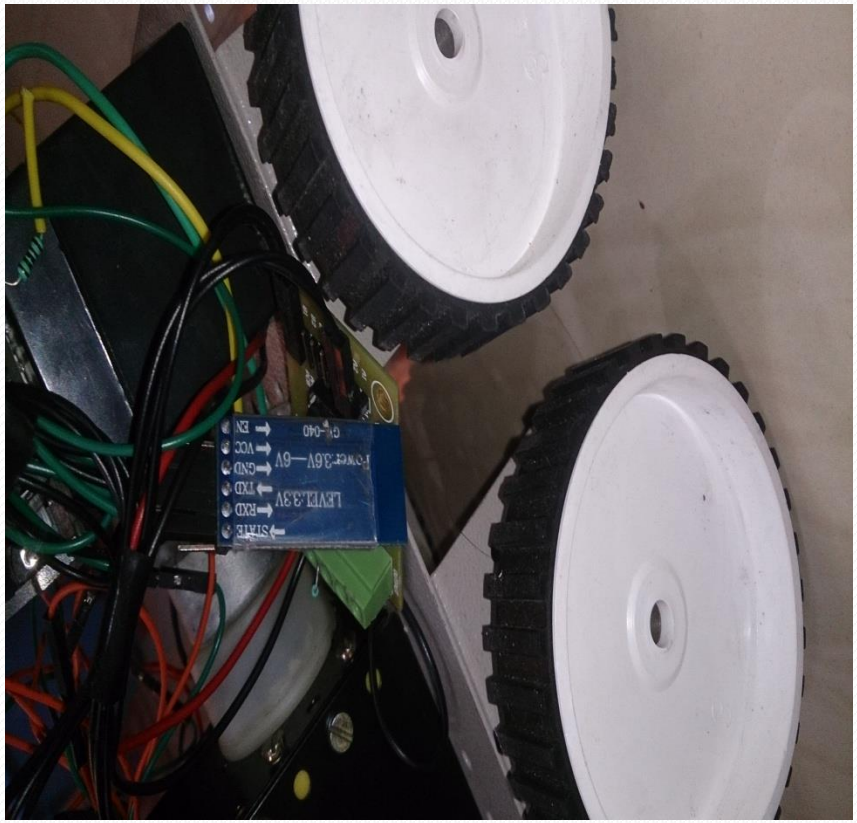


# 2. Arduino

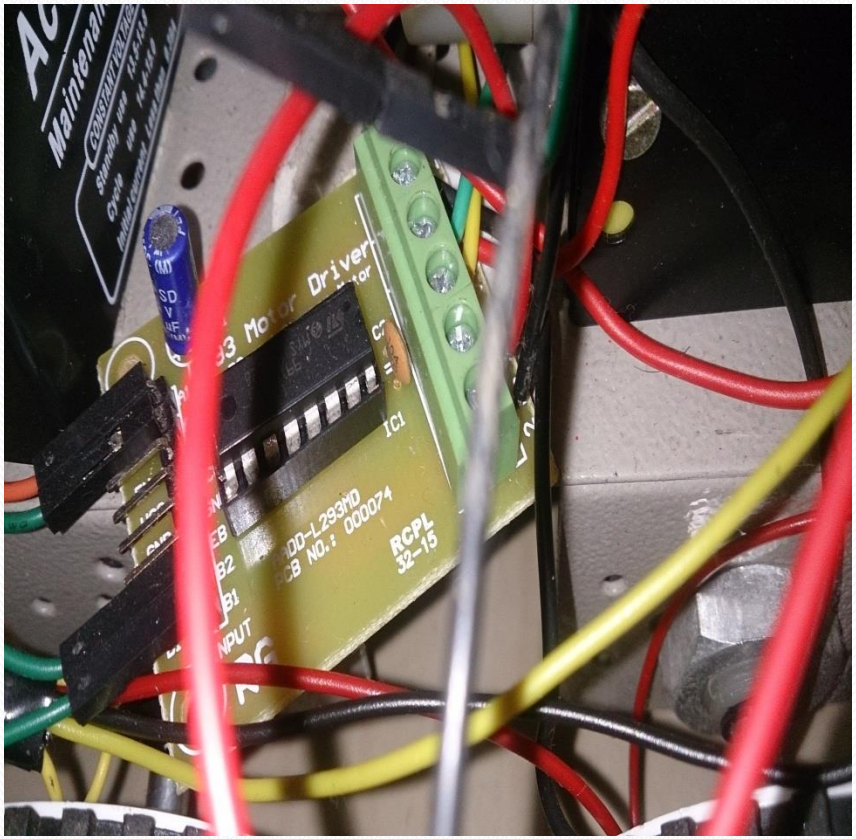


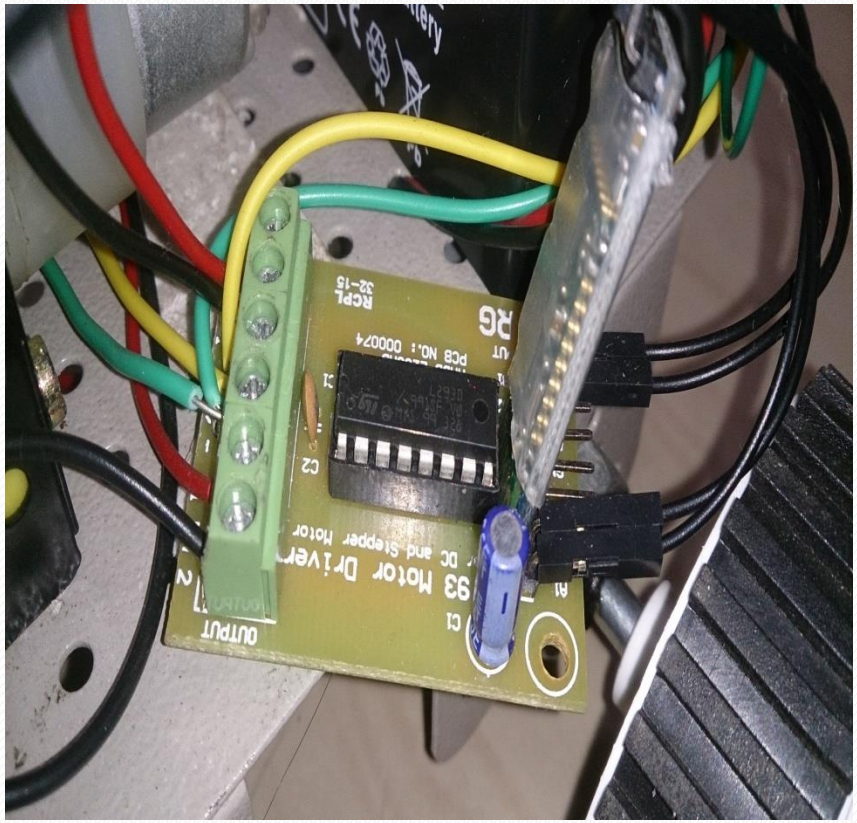
# 3. Bluetooth



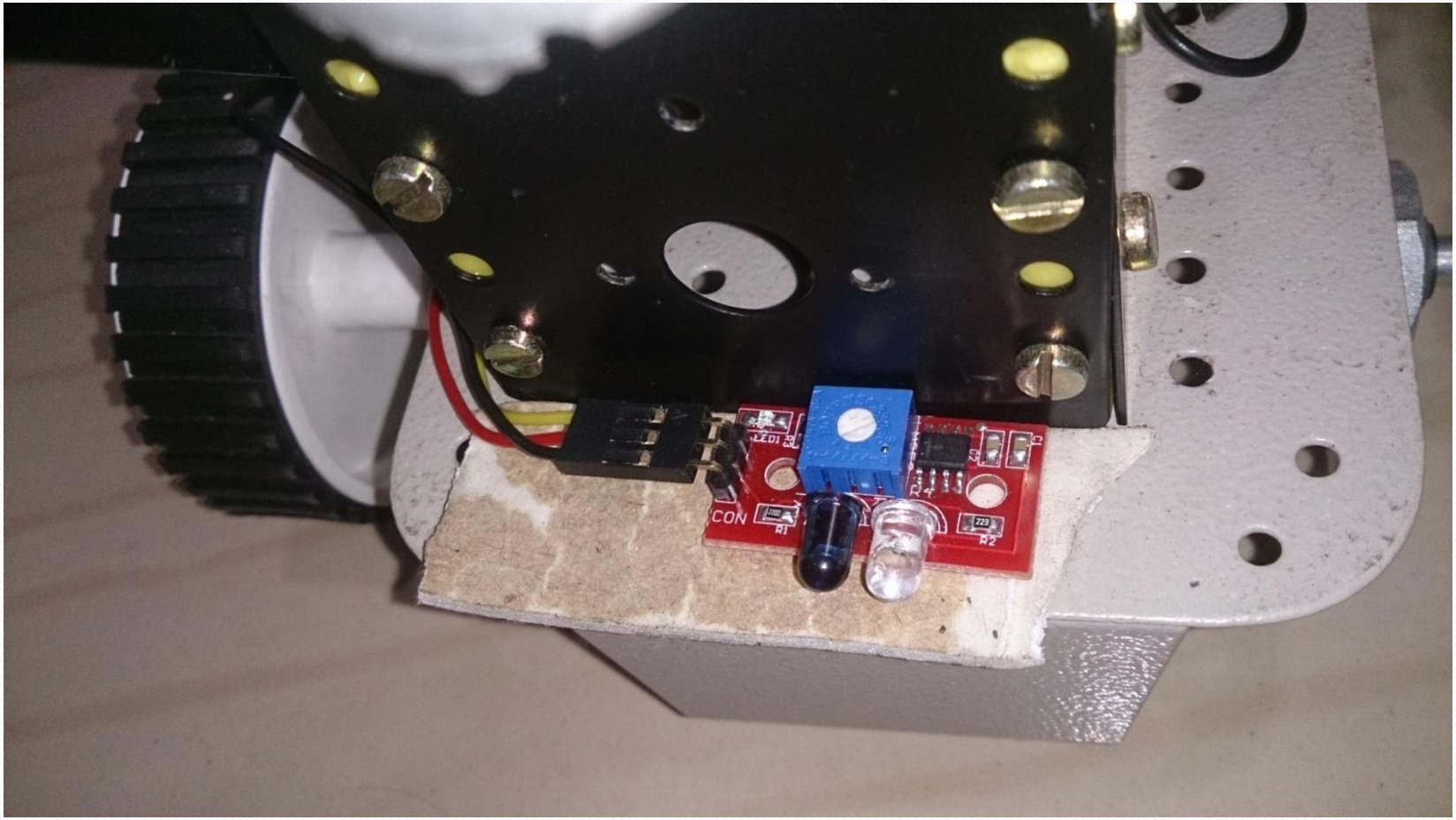


# 4. Motor Driver Module



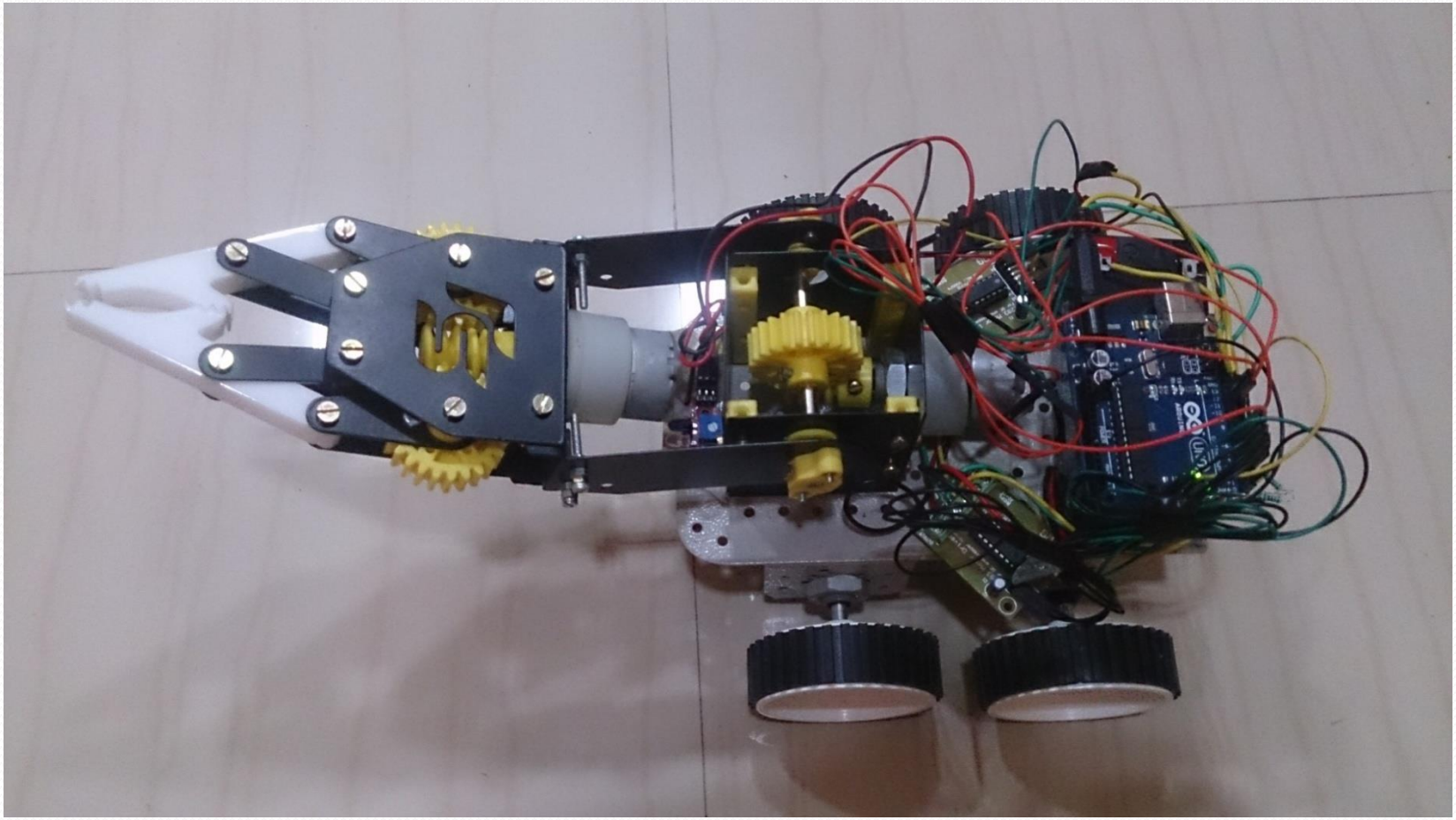



# 5. IR Sensor(Obstacle detector)

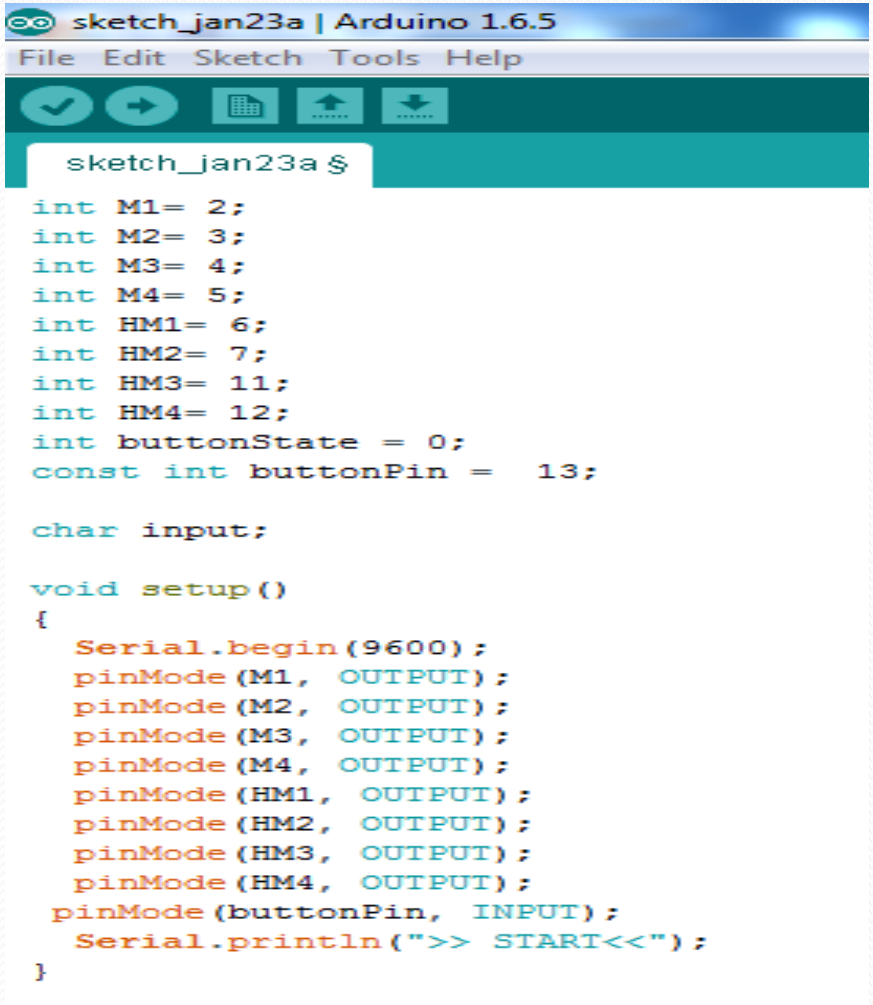


# 6. Arm

# 7. Robot



# 8. Arduino Coding



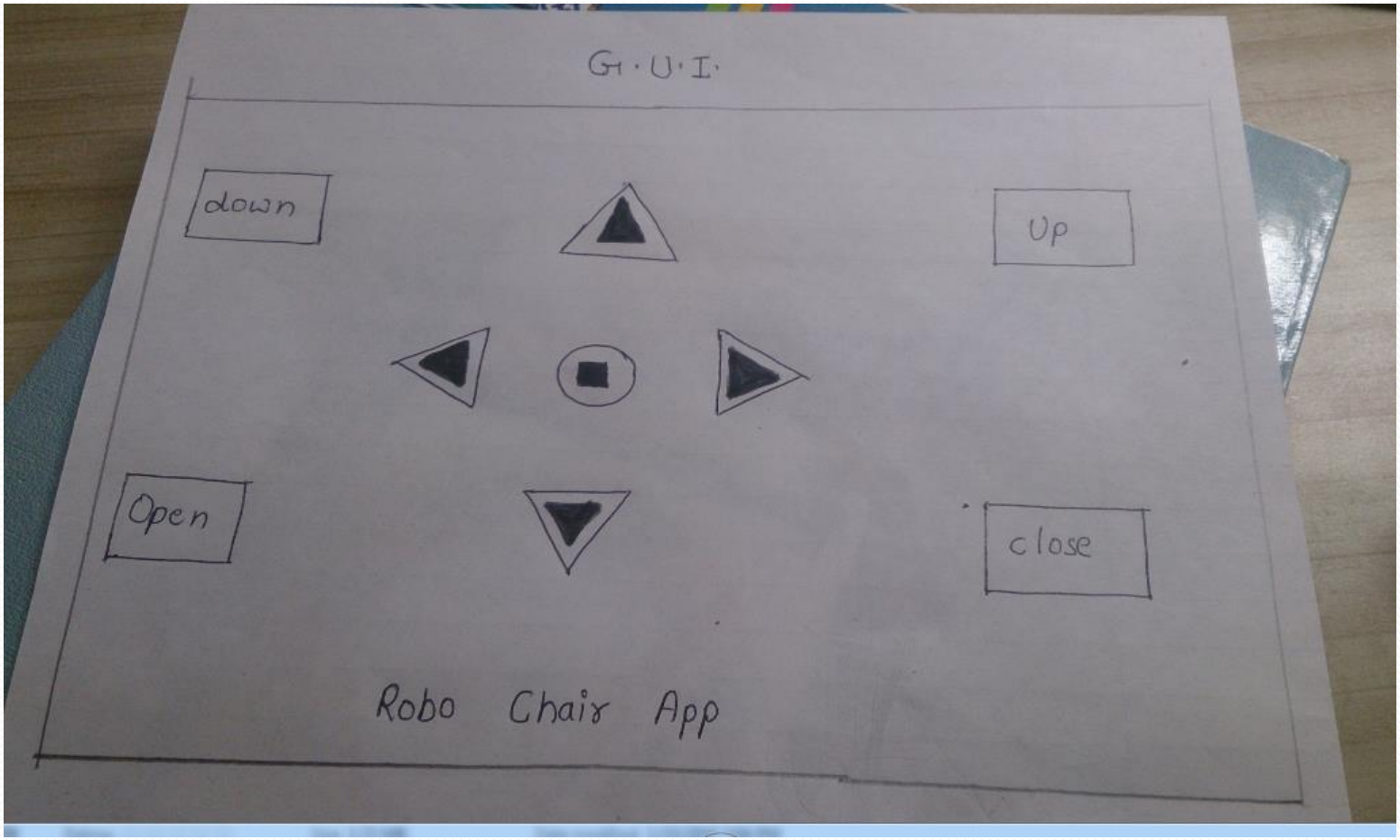

```
int M1= 2;
int M2= 3;
int M3= 4;
int M4= 5;
int HM1= 6;
int HM2= 7;
int HM3= 11;
int HM4= 12;
int buttonState = 0;
const int buttonPin =  13;

char input;

void setup()
{
  Serial.begin(9600);
  pinMode(M1, OUTPUT);
  pinMode(M2, OUTPUT);
  pinMode(M3, OUTPUT);
  pinMode(M4, OUTPUT);
  pinMode(HM1, OUTPUT);
  pinMode(HM2, OUTPUT);
  pinMode(HM3, OUTPUT);
  pinMode(HM4, OUTPUT);
 pinMode(buttonPin, INPUT);
  Serial.println(">> START<<");
}
```

```
void loop()
{
buttonState = digitalRead(buttonPin);
   if(Serial.available()>0)
   {
      input= Serial.read();
      if(input=='2')
      {
         Serial.println("ON");
         digitalWrite(M1, HIGH);
         digitalWrite(M2, LOW);
         digitalWrite(M3, HIGH);
         digitalWrite(M4, LOW);
         delay(2);
      }
      else if(input=='8')
      {
         Serial.println("OFF");
         digitalWrite(M1, LOW);
         digitalWrite(M2, HIGH);
         digitalWrite(M3, LOW);
         digitalWrite(M4, HIGH);
         delay(2);
      }
```

# Arduino coding for obstacle detection

```
else if(buttonState == HIGH)
 {
   Serial.println("NO INPUT");
   Serial.println(input);
     digitalWrite(M1, LOW);
   digitalWrite(M2, HIGH);
   digitalWrite(M3, LOW);
   digitalWrite(M4, HIGH);
   digitalWrite(HM1, LOW);
   digitalWrite(HM2, LOW);
   digitalWrite(HM3, LOW);
   digitalWrite(HM4, LOW);
   delay(500);
   digitalWrite(M1, LOW);
   digitalWrite(M2, LOW);
   digitalWrite(M3, LOW);
   digitalWrite(M4, LOW);
}
```

# G.U.I.



# THANK YOU