SMART TRANSPORTATION SYSTEM FOR DISABLED PEOPLE

REPORT OF PROJECT SUBMITTED FOR PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF
BACHELOR OF TECHNOLOGY
IN ELECTRICAL ENGINEERING

By:

Ritik Kumar
REGISTRATION NO –037443 0f 2019-20
UNIVERSITY ROLL NO – 11701619040

Anjali Kumari
REGISTRATION NO –037802 0f 2019-20
UNIVERSITY ROLL NO – 11701619014

Abhishek Mishra
REGISTRATION NO –037592 0f 2019-20
UNIVERSITY ROLL NO – 11701619029

Bachelor of Technology
in
ELECTRICAL ENGINEERING
Under the supervision of
Dr. DEBASISH MONDAL, Associate professor

Department of Electrical Engineering
RCC INSTITUTE OF INFORMATION TECHNOLOGY
Affiliated to Maulana Abul Kalam Azad University of Technology, West Bengal
CANAL SOUTH ROAD, BELIAGHATA, KOLKATA – 700015

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CERTIFICATE

To whom it may concern

The report of the Project titled "Intelligent transportation system for disabled person." submitted by Ritik Kumar (Roll No.:11701619040of B.Tech.(EE) 8th Semester of 2023), Anjali Kumari (Roll No.:11701619014 of B.Tech.(EE)8th Semester of 2023), Abhishek Mishra (Roll No.:11701619029 of B.Tech.(EE)8th Semester of 2023), has been prepared under our supervision for the partial fulfilment of the requirements for BTech (EE) degree in Maulana Abul Kalam Azad University of Technology (MAKAUT), West Bengal. The report is hereby forwarded.

…….

Dr. Debashish Mondal
Associate Professor Department of EE
RCCIIT, Kolkata (Internal Supervisor)

Countersigned by

…….

Dr. Shilpi Bhattacharya
Associate Professor and HOD Department of EE
RCC Institute of Information Technology, Kolkata – 700 015, India

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……
Ritik Kumar
Reg. No.: 037443 of 2019-20
Roll No.: 11701619040
B. Tech (EE) – 8thSemester, 2023, RCCIIT

……
Anjali Kumari
Reg. No.: 037802of 2019-20
Roll No.: 11701619014
B. Tech (EE) – 8th Semester, 2023, RCCIIT

……..……
Abhishek Mishra
Reg. No.: 037592 of 2019-20
Roll No.: 11701619029
B. Tech (EE) – 8th Semester, 2023, RCCIIT

ABSTRACT

The main objective of this project is to develop a Smart transportation for disabled people. For a significant number of people with visual impairments, public transport plays an important role in productivity, community participation, and independence. This project presents an assistive system for the visually impaired and blind people which helps them using public transport means. Smart transportation is a rapidly developing field that has the potential to revolutionize the way people travel. By using advanced technologies such as artificial intelligence, big data, and the internet of things, smart transportation systems can make transportation more efficient, safer, and more accessible for everyone, including people with disabilities. Smart transportation is still in its early stages of development, but it has the potential to make a major impact on the lives of people with disabilities. By making transportation more accessible, efficient, and safe, smart transportation can help people with disabilities live more independent and fulfilling lives.

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1. INTRODUCTION

Smart transportation is a rapidly developing field that has the potential to revolutionize the way people travel. By using advanced technologies such as artificial intelligence, big data, and the internet of things, smart transportation systems can make transportation more efficient, safer, and more accessible for everyone, including people with disabilities. Improve the safety of transportation for blind people. Provide assistance to blind people who need help getting around. Smart transportation is still in its early stages of development, but it has the potential to make a major impact on the lives of blind people. By making transportation more accessible, efficient, and safe, smart transportation can help blind people live more independent and fulfilling lives. These are just a few examples of how smart transportation is being used to improve the lives of blind people. As smart transportation technology continues to develop, it is likely that we will see even more innovative and helpful ways to use this technology to make transportation more accessible and inclusive for everyone.

1.1 Description

A smart traffic system for blind people is a system that uses technology to help blind people cross the street safely. The system typically includes a combination of sensors, actuators, and software. The sensors are used to detect the presence of vehicles and pedestrians. The actuators are used to control the traffic lights and other devices. The software is used to coordinate the operation of the sensors, actuators, and other devices. The approach is to use audio signals to help blind people cross the street safely. The audio signals can be generated by the traffic lights or by other devices. The audio signals can be used to indicate the current state of the traffic lights, such as whether the light is red or green.

Smart traffic systems for blind people can be a valuable tool for helping blind people to live independently. The systems can help blind people to cross the street safely and to get around their communities more easily.

Here are some of the benefits of using smart traffic systems for blind people:

Improved safety: Smart traffic systems can help to improve the safety of blind people by providing them with information about the current state of the traffic lights.

Increased independence: Smart traffic systems can help blind people to live more independently by providing them with the information they need to cross the street safely.

Reduced stress: Smart traffic systems can help to reduce the stress of crossing the street for blind people by providing them with information about the current state of the traffic lights.

2. THEORY

2.1 Working Principle

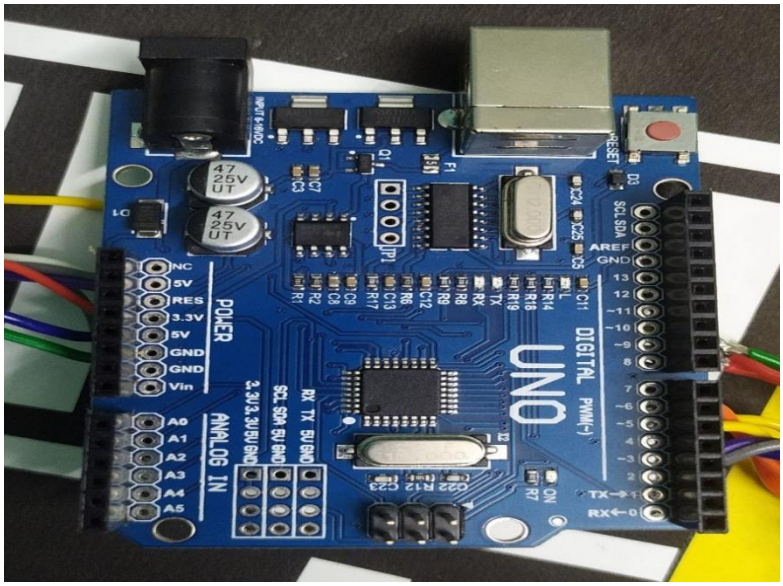
The theory for smart transportation for blind people is based on the idea that by using advanced technologies, we can make transportation more accessible, efficient, and safe for people with visual impairments. It makes transportation more accessible for blind people is to use real-time information about public transportation schedules and arrival times. It is more accessible for blind people is to create accessible transportation options. This includes accessible sidewalks and crosswalks. It help through the use of personal assistants who can help blind people navigate public transportation systems. By implementing these and other strategies, we can make transportation more accessible, efficient, and safe for blind people. This will help blind people live more independent and fulfilling lives.

Buzzers at crosswalks can detect when a blind person is approaching and then trigger an audible signal to let the blind person know that it is safe to cross the street. Personal assistants can help blind people navigate public transportation systems.

As smart transportation technology continues to develop, it is likely that we will see even more innovative and helpful ways to use this technology to make transportation more accessible and inclusive for everyone.

3. HARDWARE MODEL

3.1 Arduino Uno



The Arduino Uno is an open-source microcontroller board based on the Microchip ATmega328P microcontroller and developed by Arduino.cc and initially released in 2010. The board is equipped with sets of digital and analog input/output (I/O) pins that may be interfaced to various expansion boards (shields) and other circuits. The board has 14 digital I/O pins (six capable of PWM output), 6 analog I/O pins, and is programmable with the Arduino IDE (Integrated Development Environment), via a type B USB cable.

The Arduino Uno is the most popular Arduino board and is used by beginners and experts alike. It is a great board for learning about electronics and programming, and it can be used to create a wide variety of projects.

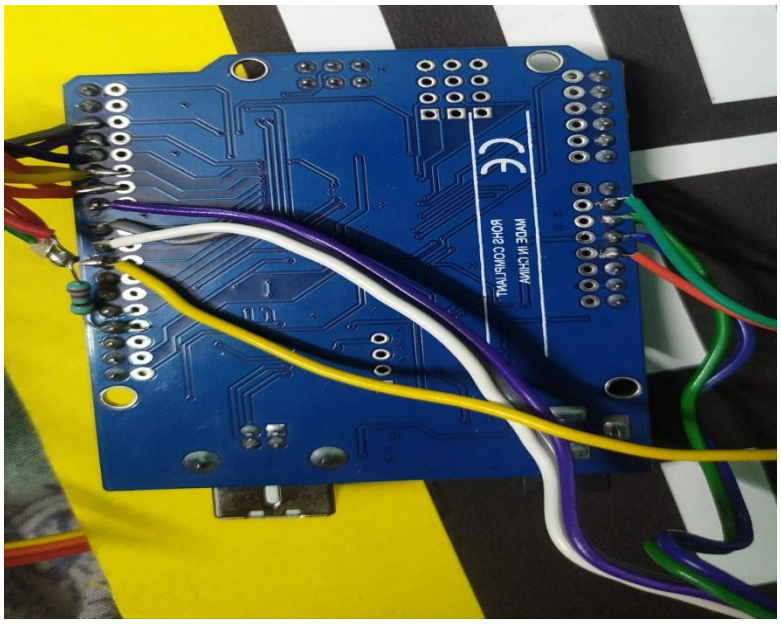


Fig 4.1 Arduino uno

To program the Arduino Uno, you first need to write a program in the Arduino programming language. The Arduino programming language is based on C++ and is very easy to learn. Once you have written your program, you can compile it and upload it to the Arduino Uno using the Arduino IDE. The Arduino Uno is a powerful and versatile board that can be used to create a wide variety of projects. It is a great board for beginners and experts alike. If you are interested in learning about electronics and programming, the Arduino Uno is a great place to start.

The Arduino Uno is a great tool for learning about electronics and programming. It is a versatile board that can be used to create a wide variety of projects.

3.2 BUZZER:

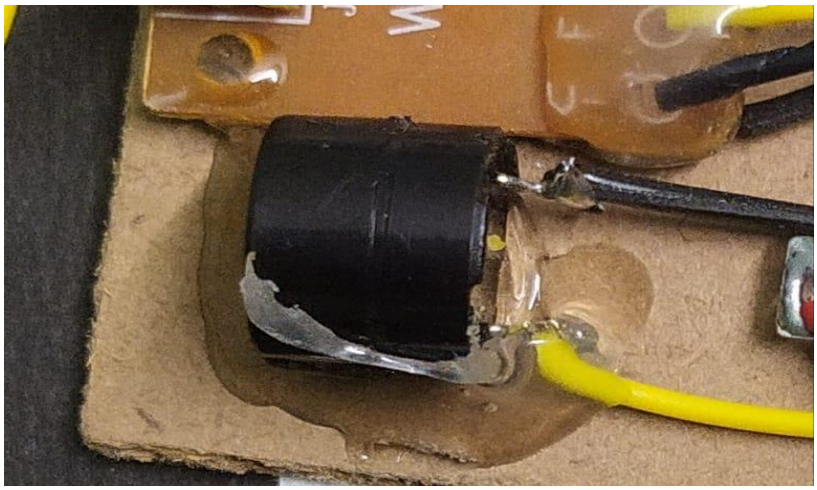


Fig 4.2. Buzzer

A buzzer or beeper is an audio signaling device. When a voltage is applied across the two electrodes, the piezoelectric material mechanically deforms due to the applied voltage. This movement of the piezo disk within the buzzer creates sound in a similar manner as the movement of the ferromagnetic disk in a magnetic buzzer or the speaker cone. A buzzer works by converting electrical energy into sound energy. The electrical energy is applied to the buzzer's coil, which creates a magnetic field. The magnetic field attracts a metal diaphragm, which vibrates. The vibrations of the diaphragm create sound waves

3.3 LED

Fig 4.3 Led

A light-emitting diode (LED) is a semiconductor device that emits light when current flows through it. Electrons in the semiconductor recombine with electron holes, releasing energy in the form of photons. The color of the light (corresponding to the energy of the photons) is determined by the energy required for electrons to cross the band gap of the semiconductor. White light is obtained by using multiple semiconductors or a layer of light-emitting phosphor on the semiconductor device. LEDs are made in different packages for different applications. A single or a few LED junctions may be packed in one miniature device for use as an indicator or pilot lamp. An LED array may include controlling circuits within the same package, which may range from a simple resistor, blinking or color changing control, or an addressable controller for RGB devices. Higher-

powered white-emitting devices will be mounted on heat sinks and will be used for illumination. Alphanumeric displays in dot matrix or bar formats are widely available.

LEDs are a versatile and widely used technology. They are available in a variety of colors and sizes, and can be used in a wide range of applications. LEDs are becoming increasingly popular as a replacement for traditional light sources due to their energy efficiency, long life, and small size.

4. METHODOLOGY

There are two units-

1. Traffic control unit.

2. Human unit.

1.Traffic control unit- In this unit there are three switches and one Tx transmission module which sends signal to blind person about current status.

2. Human unit- In this unit there is a Rf receiver which receives signal from transmitter and buzzer will beep accordingly.

4.1 CONTROL TYPE

MANUAL CONTROL.

a. Set the Function of Switches in Application.

b. Checkout All the Connection First.

c. Now To Test The Model…..

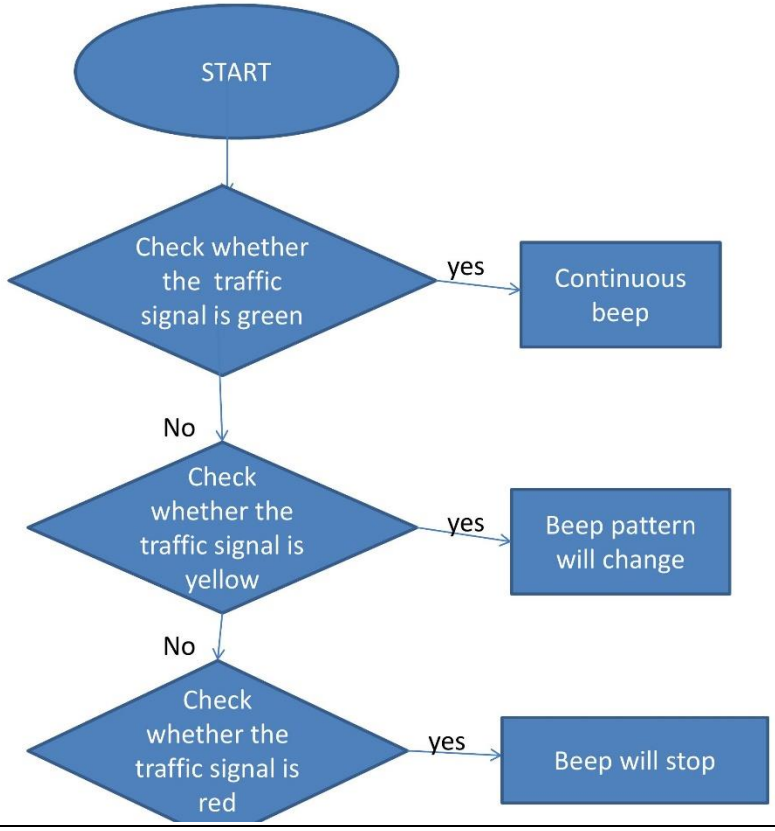
TRAFFIC CONTROL.

a. When we press the button for green signal of traffic light the pedestrian signal will be red, and the continuous beep sound will be hear by the disabled person.

b. When we press the button for yellow signal of traffic light, the continuous beep sound will be stop and it the pattern of sound will get change.It will indicate the person about slowing down of vehicles.

C. When we press the button for red signal of traffic light, no sound will be generated indicating that the pedestrian signal is green now and he can walk off.

4.2 Flow Chart



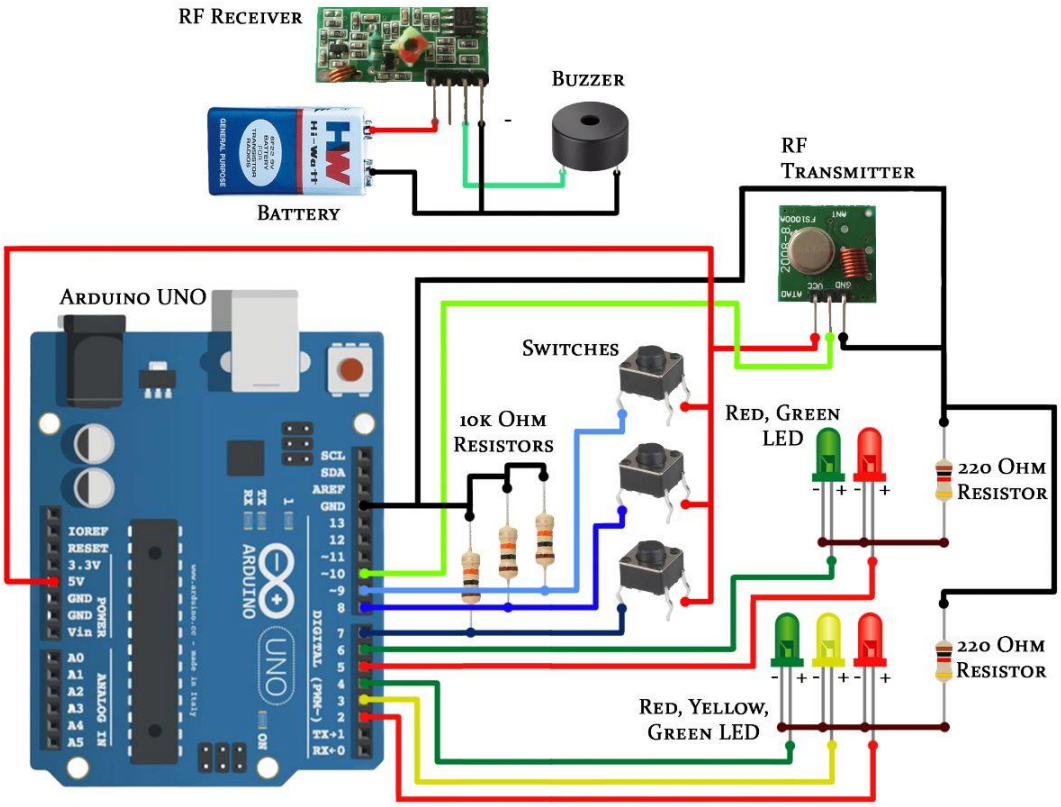
5. CODE

```
int red = 2;      // traffic light red
int ylw = 3;      // traffic light yellow
int grn = 4;      // traffic light green
int pdr = 5;      // road cross red
int pdg = 6;      // road cross green
int btn[] = {7,8,9};
int buz = 10;
int state = 0;

void stop() {
  digitalWrite(pdr,HIGH);
  digitalWrite(pdg, LOW);
  digitalWrite(red, LOW);
  digitalWrite(ylw, LOW);
  digitalWrite(grn,HIGH);
  digitalWrite(buz,HIGH);
}
void wait() {
  digitalWrite(pdr,HIGH);
  digitalWrite(pdg, LOW);
  digitalWrite(red, LOW);
  digitalWrite(ylw,HIGH);
  digitalWrite(grn, LOW);
  for(int i=0;i<2;i++) {
    digitalWrite(buz,HIGH);
```

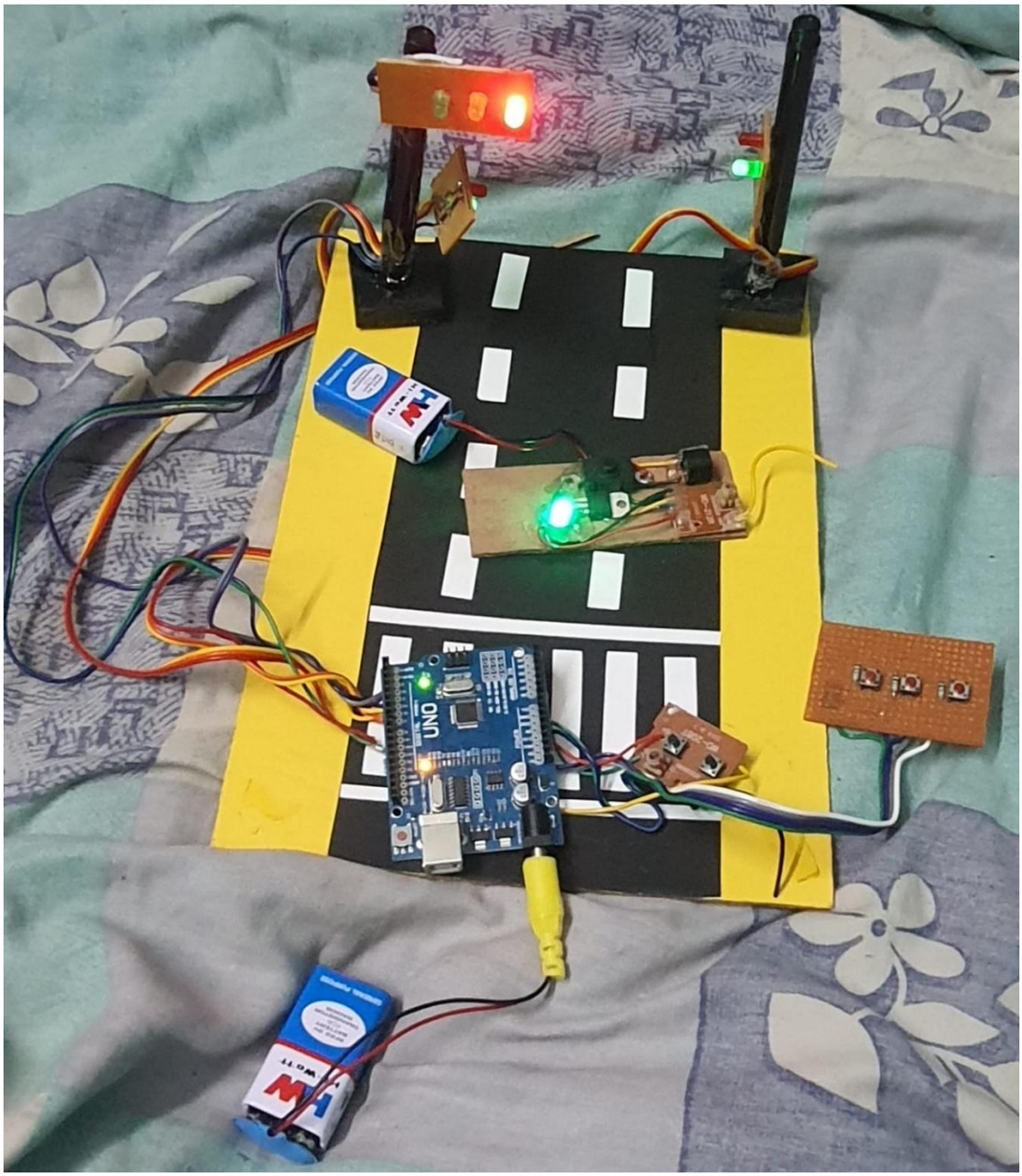
```
    delay(300);
    digitalWrite(buz, LOW);
    delay(300);
  }
  delay(500);
}
void go() {
  digitalWrite(pdr, LOW);
  digitalWrite(pdg, HIGH);
  digitalWrite(red, HIGH);
  digitalWrite(ylw, LOW);
  digitalWrite(grn, LOW);
  digitalWrite(buz, LOW);
}

void setup() {
  for(int i=0;i<(sizeof(btn)/sizeof(btn[0]));i++) pinMode(btn[i],INPUT);
  pinMode(red,OUTPUT);
  pinMode(ylw,OUTPUT);
  pinMode(grn,OUTPUT);
  pinMode(pdr,OUTPUT);
  pinMode(pdg,OUTPUT);
  pinMode(buz,OUTPUT);
}

void loop() {
  if(digitalRead(btn[0])) {
    delay(200);
    state = 0;
```

```
  }
  else if(digitalRead(btn[1])) {
    delay(200);
    state = 1;
  }
  else if(digitalRead(btn[2])) {
    delay(200);
    state = 2;
  }
  switch(state) {
    case 0:
      go();
      break;
    case 1:
      wait();
      break;
    case 2:
      stop();
      break;
    default:
      break;
  }
}
```

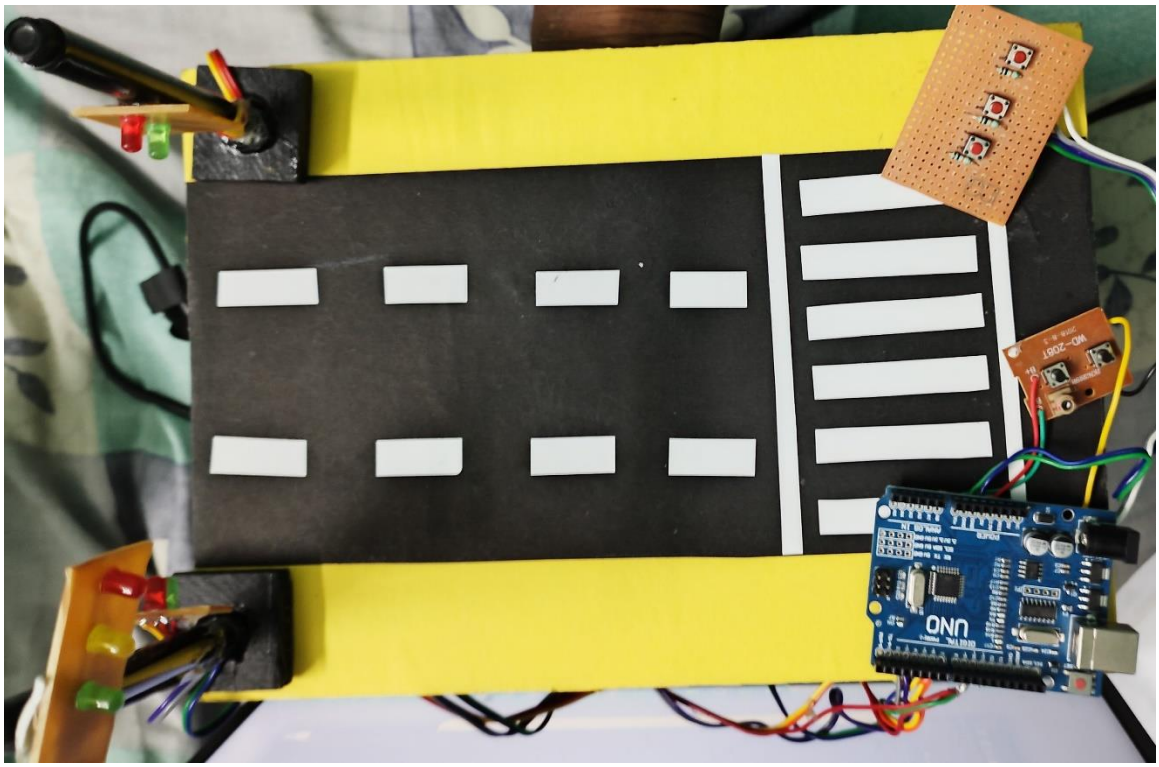
6. CIRCUIT DIAGRAM



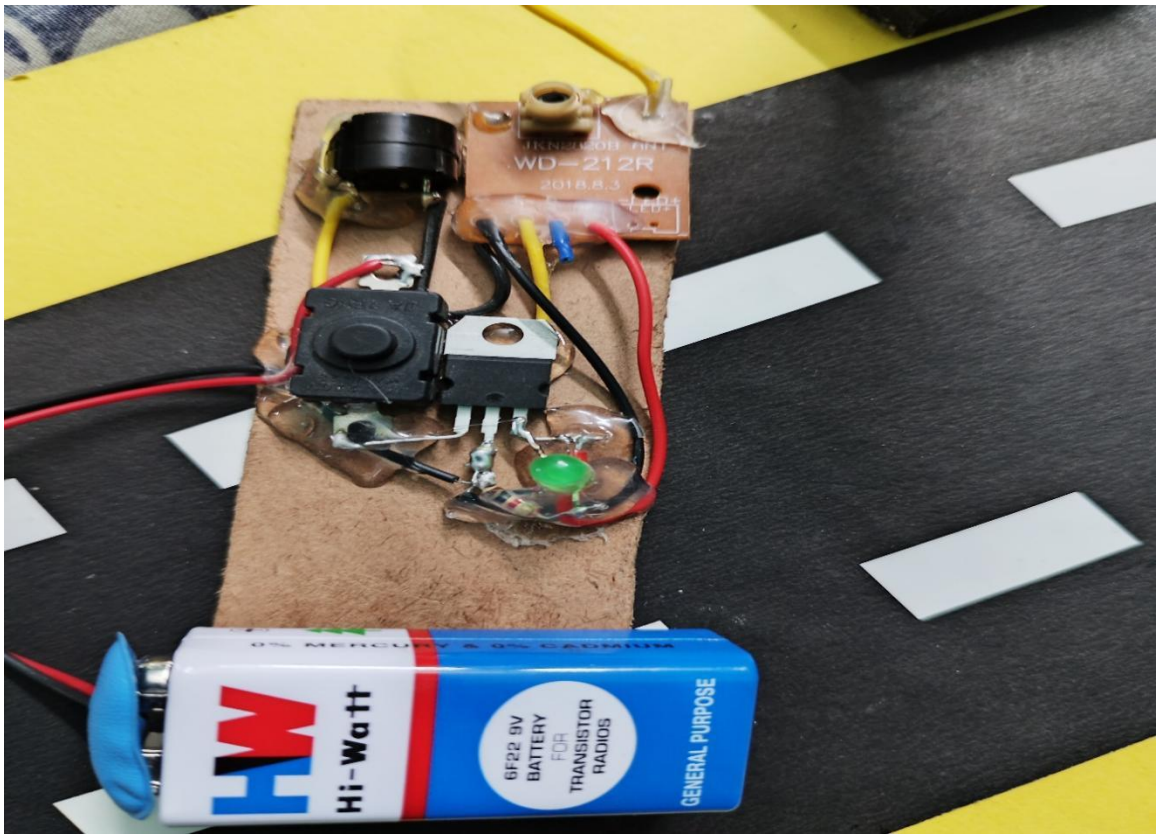
7. RESULTS ANALYSIS



7.1 . Traffic control unit



7.2. Human Unit



8. Conclusion

Smart traffic systems for blind people are a promising new technology that has the potential to improve the safety and independence of blind people. These systems can provide blind people with information about the current state of the traffic lights, which can help them to cross the street safely and to get around their communities more easily.

There are a number of different smart traffic systems for blind people that are being developed and implemented around the world. Some of these systems use Braille markings on traffic lights, while others use audio signals or smartphone apps. The best system for a particular blind person will depend on their individual needs and preferences.

Smart traffic systems for blind people are still in their early stages of development, but they have the potential to make a significant impact on the lives of blind people. These systems can help blind people to live more independently and to reduce the stress of crossing the street. As these systems continue to develop, they will become more widespread and will help to make the world a more accessible place for
blind people.

Here are some of the challenges that need to be addressed in order to make smart traffic systems for blind people more effective:

- Cost: Smart traffic systems can be expensive to install and maintain. This can be a barrier for some communities.
- Technology: Smart traffic systems rely on technology, which can be unreliable at times. This can be a challenge for blind people who rely on these systems to get around.
- Acceptance: Smart traffic systems are a new technology, and some people may not be comfortable using them. This can be a challenge for blind people who want to use these systems.

Despite these challenges, smart traffic systems for blind people are a promising new technology that has the potential to improve the safety and independence of blind people. As these systems continue to develop, they will become more widespread and will help to make the world a more accessible place for blind people.

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