

“VOICE CONTROLLED TRIGGER”

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A project report submitted to

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in

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VIT[®]
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BONAFIDE CERTIFICATE

Certified that this project report entitled “**VOICE CONTROLLED TRIGGER**” is a bonafide work of **UTKARSH BRAJNIL – 18BCE1158, HIMANSHU LOHAR – 18BCE1138** who carried out the Project work under my supervision and guidance for **CSE2006 – Microprocessor and Interfacing**.

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ABSTRACT

“VOICE CONTROLLED TRIGGER” This project was proposed by us to help the physically disabled people to help them ease their work by using simple circuit. This helps them to control the electrical appliances by giving a sound input. We have completed the circuit and have put the sensor and coding into the arduino. For the output we have put 3 led and 1 buzzer which give output according to the sound input provided.

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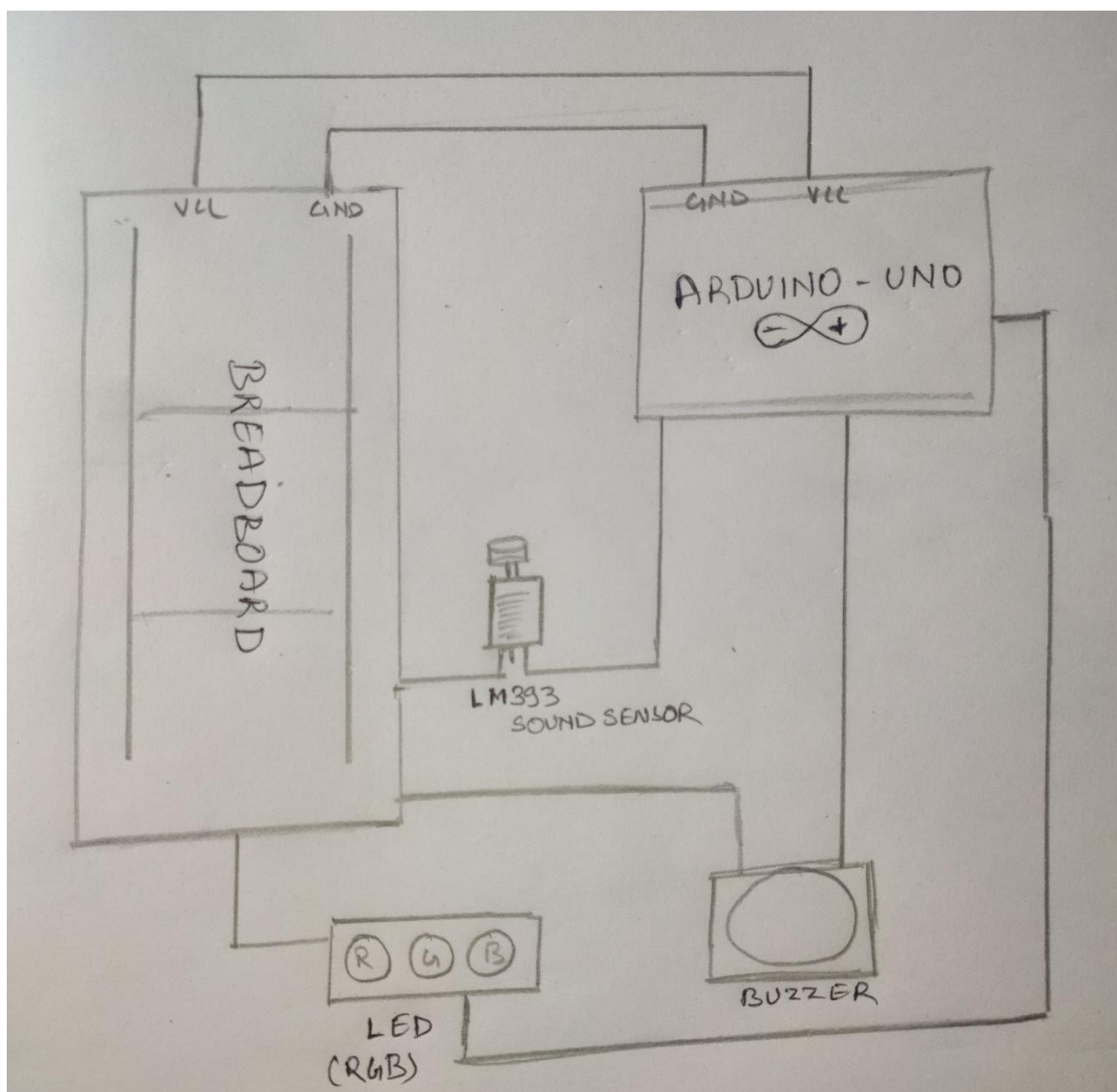
1. INTRODUCTION

1.1 OBJECTIVES AND GOALS

We a group of 2 students have made a project to help the physically disabled people which include dumb and deaf and blind people.it helps them to ease their day to day work. We have made a voice controlled switch/trigger which help them to switch ON/OFF electrical appliances like fans, light, air conditioners, etc by just giving a sound command which may me a clap or and any other sound. We have used an Arduino with a sound sensor which gives output to 3 led and a buzzer. The led and buzzer give output differently according to the input given to the sound sensor.

2. DESIGN

2.1 BLOCK DIAGRAM



"VOICE CONTROLLED TRIGGER"

2.2 HARDWARE ANALYSIS

The hardware used are breadboard, connectors, Arduino uno chip, buzzer, LM393 electric sensor, jumper wire, LED etc.

We used this approach because of various advantages of our project such as portability, efficiency and it is economical. It is easy to implement and only basic knowledge about the components required and basic knowledge about coding in arduino is required. The project is easy to carry around due to its small size which makes it convenient for demonstration purpose.

In our project we used arduino as the software for the simulation of our sound triggered sensor.

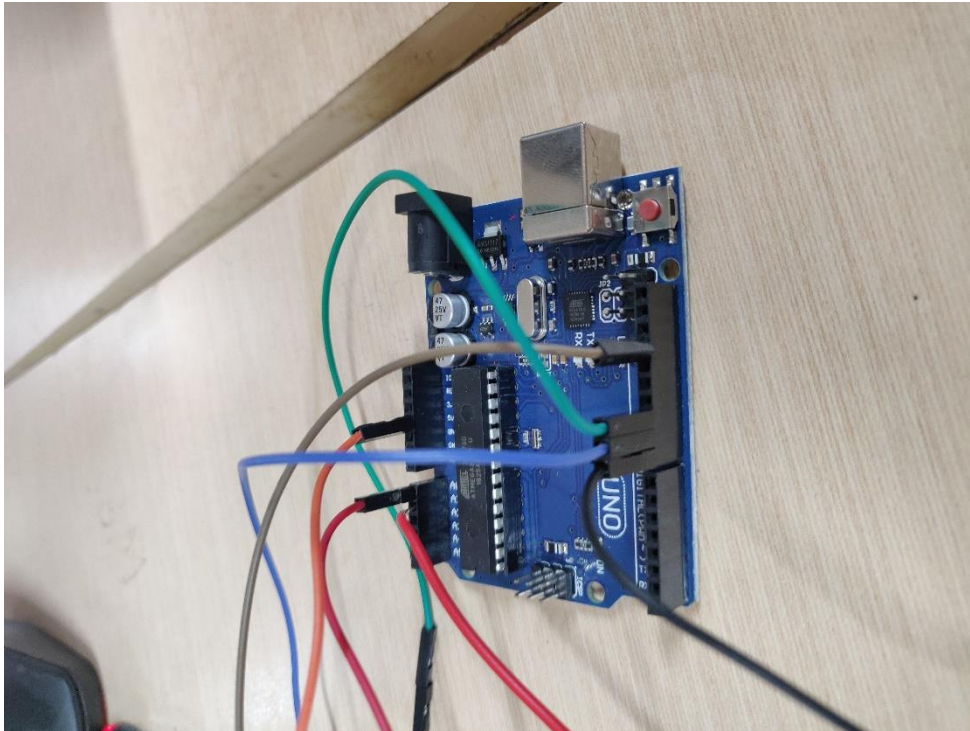
2.3 DETAILED APPROACH FOR THE IMPLEMENTATION OF THE PROJECT

Hardware/Experimental Project Details:

The basic components used in the project are breadboard, arduino chip, LM393 sound sensor,



LM393 sensor



Arduino Uno chip

Steps:-

- 1) We made a common ground for the circuit.
- 2) We fitted the sound sensor in the breadboard.
- 3) Connected the sound sensor with the arduino with the help of jumper wires.
- 4) Connected the LED lights to the breadboard.
- 5) Made connection between sound sensor and LED lights with the help of jumper wires.
- 6) Connected the buzzer with arduino which is connected to the sound sensor.
- 7) Grounded all the connection.
- 8) Wrote the code for arduino on arduino software.
- 9) Downloaded the code on arduino chip.
- 10) Implemented the code successfully.

3. SOFTWARE CODING

Arduino Code

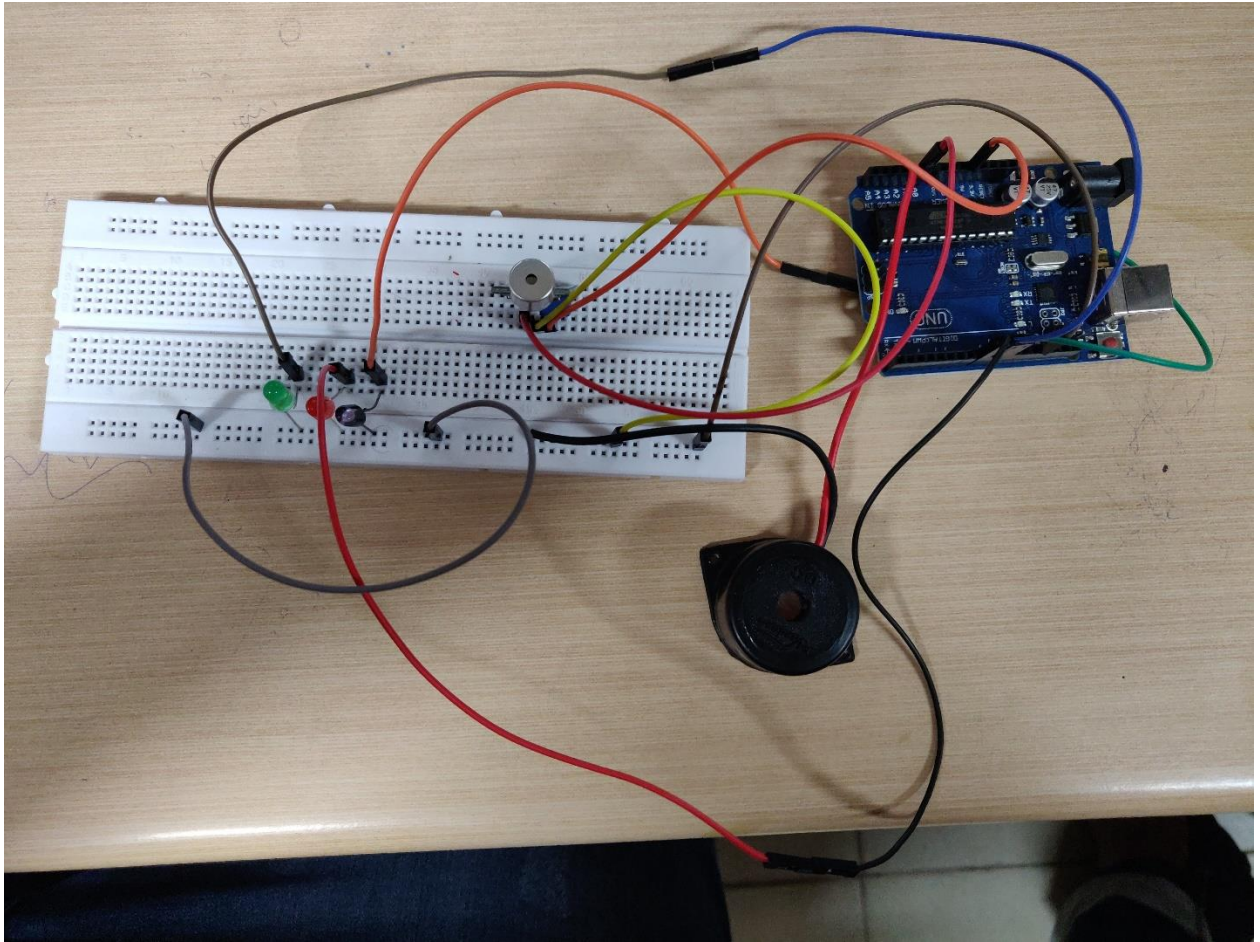
```
#define soundSensor A0
#define buzzerPin A1
#define RledPin 8
#define GledPin 9
#define BledPin 10
#define duration 40

bool r = false,g = false, b = false,buzzer = false;
int sSensorValue,c;
void setup() {
  pinMode(soundSensor, INPUT);
  pinMode(buzzerPin, OUTPUT);
  pinMode(RledPin,OUTPUT);
  pinMode(GledPin,OUTPUT);
  pinMode(BledPin,OUTPUT);
  Serial.begin(9600);
}

void loop() {
  c = 0;
  fire(true,true,true,true);
  for(int i=0;i<(10000/duration);i++){
    sSensorValue = analogRead(soundSensor);
    //Serial.println(sSensorValue);
    if(sSensorValue-100>0){
      Serial.println(sSensorValue);
      c++;
    }
    delay(duration);
  }
  Serial.println(c);
  Serial.println(" ");
  if(c==1)
    b = true;
  else if(c==2)
    r = true;
```

```
    else if(c==3)
    g = true;
    else if(c==4)
    buzzer = true;
    for(int i=0;i<25;i++)
    fire(r,g,b,buzzer);
    r = false; g = false; b = false; buzzer = false;
    fire(r,g,b,buzzer);
    c = 0;
}
```

```
void fire(bool r, bool g, bool b, bool buzzer){
    digitalWrite(RledPin,LOW);
    digitalWrite(GledPin,LOW);
    digitalWrite(BledPin,LOW);
    analogWrite(buzzerPin,0);
    if(r)
    digitalWrite(RledPin,HIGH);
    if(g)
    digitalWrite(GledPin,HIGH);
    if(b)
    digitalWrite(BledPin,HIGH);
    if(buzzer)
    analogWrite(buzzerPin,255);
    delay(100);
    digitalWrite(RledPin,LOW);
    digitalWrite(GledPin,LOW);
    digitalWrite(BledPin,LOW);
    analogWrite(buzzerPin,0);
    delay(100);
}
```



FINAL MODEL SNAPSHOT

4. CONCLUSION AND FUTURE WORK

4.1 RESULTS AND DISCUSSION

Arduino was used to get input from the sensor and give output to the led and buzzer pin.

Arduino gets a range of values of the intensity from the sensor. The initial values are in the range of 36 to 48. When it senses a clap sound the sensor peaks to a value around 1022.

The sensor is coded to wait for 10 seconds to listen to the number of claps.

The number of claps is recorded and accordingly leds will light up or the buzzer will buzz.

One clap will result in glowing of blue led, two claps will trigger red led, three claps will trigger green led and four claps will result in the trigger of the buzzer.

An arduino code interprets the sensed value of the number of claps i.e. the peak values observed by the sensor and calls another function to help give the output to the respective leds or buzzer.

Improvements: We could make use of the inductance effect to integrate this trigger into normal household devices to enable them to switch on and off without physically switching them on or off.

Our Innovation: We have made a portable cheap hands free trigger.

4.2 CONCLUSION

1. This model can prove helpful to those who are blind and deaf so that they don't have to ask or bother around for switching on the lights and fans.
2. This model has a great scope in the future for making complicated machines that can serve the purpose easily and effectively.
3. Also, for example: You are sleeping and there is dark in the room. So this model can enable you to switch on the light or fan just by uttering a code word so that you don't have to ruin your sleep and get up just for switching on the appliance.
4. This model has a portable trigger which can be fixed easily on any surface and at any angle.

5. REFERENCES

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