School of Computer Science and Engineering

HONK MORE WAIT MORE

PROJECT REPORT

BATCH – 9

COURSE CODE: CSE 220

COURSE NAME: INTERNET OF THINGS

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AIM: To develop an Arduino-based project to reduce the noise pollution at traffic signals using sound sensor.

OBJECTIVE:

The principal objective of this project is to use Arduino to build an IoT-based solution for reducing noise pollution at traffic signals. While waiting near a traffic signal, people should not honk when the red light is on, yet many do. Therefore, the aim of our project is to raise social awareness among the people by asking them to stop honking when a red light is on.

ABSTRACT:

Due to the increasing number of vehicles on the road, the noise pollution levels have risen beyond limits. No longer can a person travel from one place to another without being subjected to high intensity noise coming from vehicles at traffic junctions. The commuters try to persuade the honk even when the traffic light is red increases the undesired sound decibels to rise in the periphery of the junction this noise may have various effects on a person like hearing imparity, high blood pressure, stress, etc., at traffic signals people tend to blow horn restlessly adding nothing but noise to the environment. This paper tries to solve this problem by proposing an Arduino based solution. By using sound sensor and Arduino the noise produced in the traffic can be reduced by cutting down on the unnecessary honking by drivers. Reduction in the level of noise pollution helps to increase productivity, reduce stress etc.

COMPONENTS USED:

1. ARDUINO UNO
2. Bread Board
3. SOUND SENSOR
4. LCD 16 X 2
5. I2C MODULE
6. LEDs
7. RESISTORS
8. JUMPER WIRES

PIN-OUT DIAGRAM:

- Connect the ground pin and VCC pin from Arduino to Breadboard.
- GND → ground pin
- VCC → 5V

SOUND SENSOR

- 5Vpin →VCC pin (FROM BREAD BOARD TO SENSOR)
- GND pin → GND pin (FROM BREAD BOARD TO SENSOR)
- A3 pin → AWD pin (FROM ARDUINO UNO TO SENSOR)

12C LCD

- 5V pin → VCC pin (FROM BREAD BOARD TO SENSOR)
- GND pin → GND pin (FROM BREAD BOARD TO SENSOR)
- A4 pin → SEA pin (FROM ARDUINO UNO TO SENSOR)
- A5 pin → SCL pin (FROM ARDUINO UNO TO SENSOR)

Red Light to Pin No 5**, Green light** to Pin No 6 (with resistors).

PROGRAM FOR OUR PROJECT:

```
#include <BlynkSimpleSerialBLE.h>
#include <LiquidCrystal_I2C.h>
LiquidCrystal_I2C lcd(0x27,16,2);
BlynkTimer timer;

int sound_sensor = 4;
intsound_sensor_val;
intsignal_count = 60;
intred_led = 5;
intgreen_led = 6;

void setup ()
{
        Serial.begin(9600);
        lcd.init();
        lcd.backlight();
        pinMode(sound_sensor, INPUT);
        pinMode(red_led, OUTPUT);
        pinMode(green_led, OUTPUT);
        timer.setInterval(1000, get_count);
        timer.setInterval(250, read_sensor);
        lcd.clear();
        lcd.setCursor(0,0);
        lcd.print("Noise Reduction");
        lcd.setCursor(0,1);
        lcd.print("Starting...");
        delay (2000);
}
```

```
void read_sensor()
{
        sound_sensor_val = digitalRead(sound_sensor);
        Serial.println("sound val" + String(sound_sensor_val));
}
void get_count()
{
        lcd.clear();
        lcd.setCursor(0,0);
        lcd.print("Noise Reduction");
        lcd.setCursor(0,1);
        lcd.print("Time:" + String(signal_count));
        if (sound_sensor_val == 1)
        {
                signal_count = signal_count + 30;
                digitalWrite(red_led, HIGH);
                digitalWrite(green_led, LOW);
        }
        else if(signal_count == 0)
        {
                digitalWrite(red_led, LOW);
                digitalWrite(green_led, HIGH);
                lcd.clear();
                lcd.setCursor(0,0);
                lcd.print("Noise Reduction");
                lcd.setCursor(0,1);
                lcd.print("Go");
                delay (5000);
                signal_count = 60;
        }
```

```
        else if (sound_sensor_val == 0)

        {

                signal_count -= 1;

                digitalWrite(red_led, HIGH);

                digitalWrite(green_led, LOW);

        }

Serial.println(signal_count);

}

void loop ()

{

        timer.run();

}
```
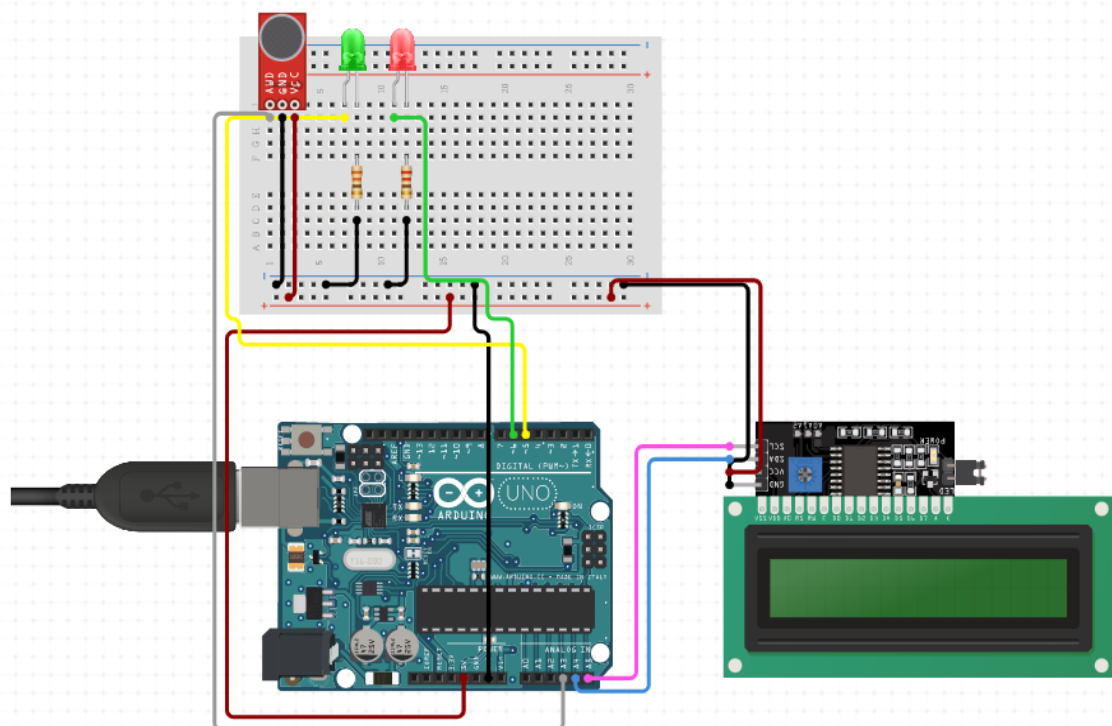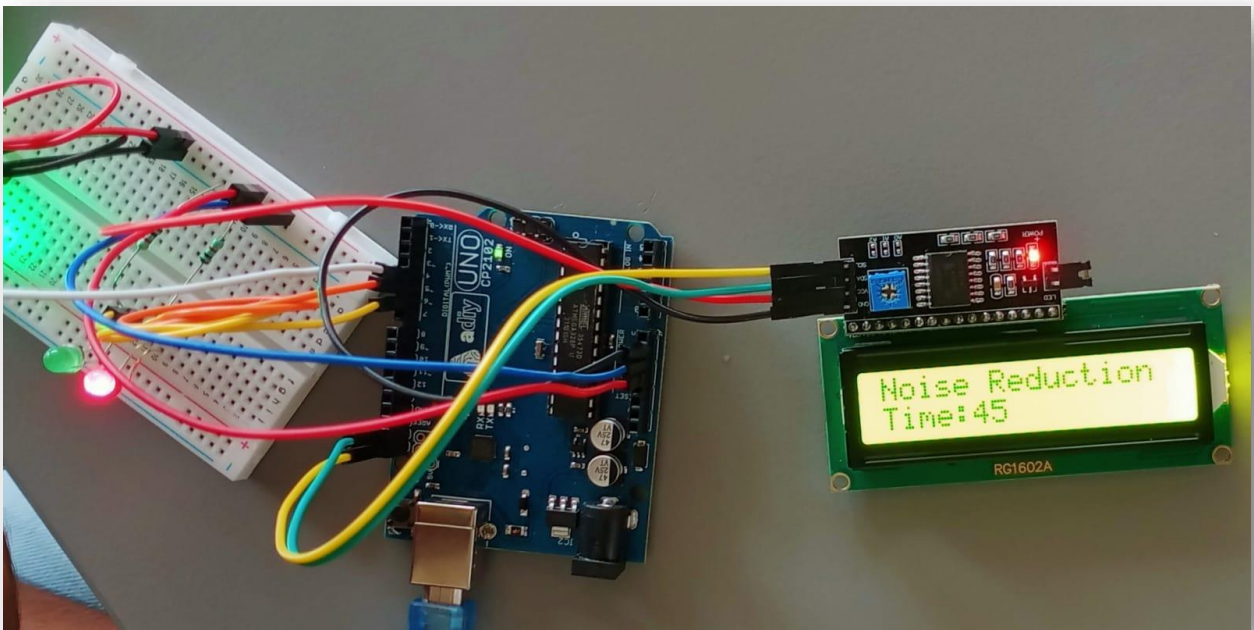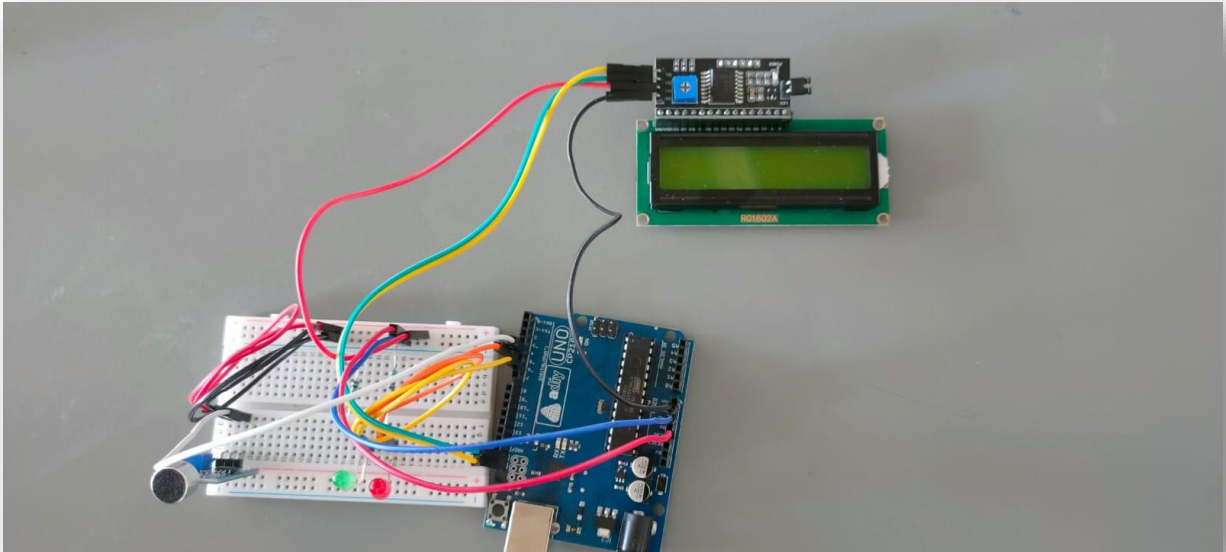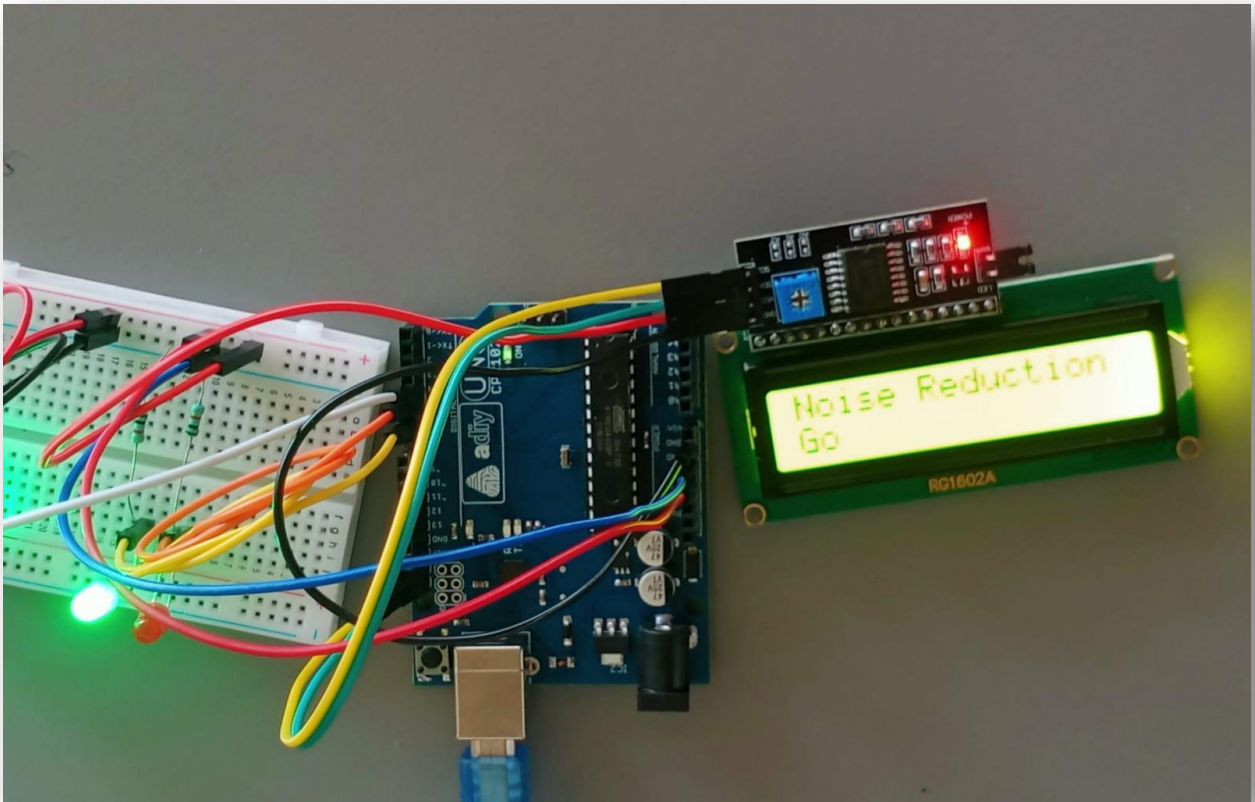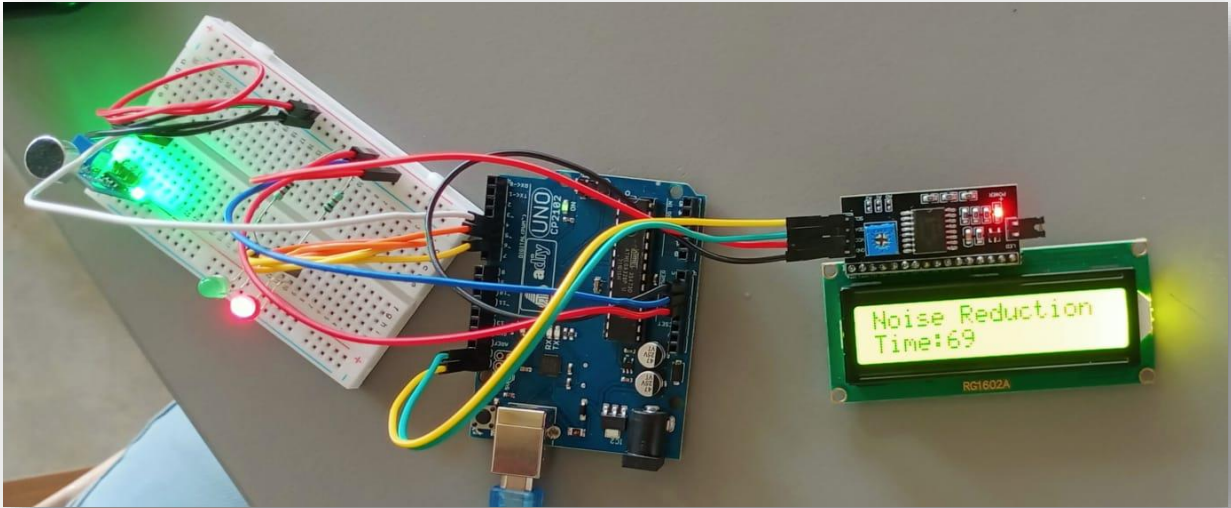
CIRCUIT DIAGRAM :

THE COMPLETE PICTURE OF OUR PROJECT:

CONCLUSION:

Since there are more cars on the road, the amount of noise pollution has gotten out of hand. A person can no longer go from one place to another without being exposed to loud noise from passing cars at traffic signals. A person's response to noise may take many different forms, including hearing loss, elevated blood pressure, stress, and more. Our project's purpose is to find an Arduino-based solution to deal with this problem. using an audio sensor Increasing productivity and lowering stress are a few benefits of reducing noise pollution.