

# DOMAIN:INTERNET OF THINGS

## TOPIC:NOISE POLLUTION MONITORING

### PHASE 4:DEVELOPMENT PART 2

A handy, easy, and smart tool for you!

Sound meter app

#### ABOUT THIS APP

New in this version (1.4.0+):

- new Tab - Sensors
- much more information added
- added more than 15 pages such as compass, settings, flashlight, and much more
- High-Performance improvement.
- UI UX awesome changes.
- New features added.
- Bug fixes.

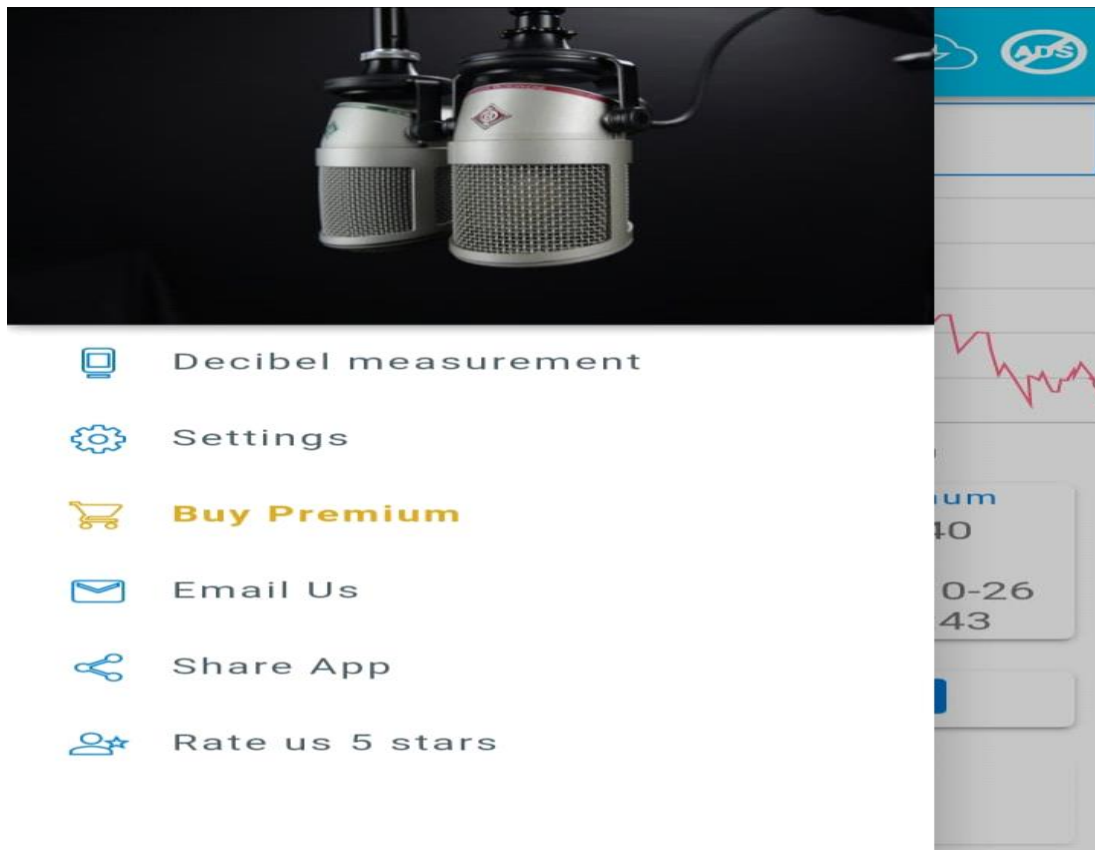
The sound level meter app checks the measured dB values In your immediate area

The sound level meter application (SPL) checks and displays the measured dB values In your immediate area. The app shows decibel values by measure the noise, in a professional graphic view.

The Sound level meter (SPL) application has all the features that you need-

- ✓Indicate and display decibels by gauge
- ✓Record of Max/Avg/Min decibel values, via clear logarithmic graph

- ✓The sound meter app will show you accurate sound value
- ✓History page - contain all your decibel data history
- ✓Backup and synchronize files- WhatsApp, Google Drive, Dropbox, and more
- ✓The sound level meter app is free
- ✓The app displays decibel readings as a gauge is a tool for measuring the sound level of your surroundings.
- ✓The gauge shows the decibel level on a scale, with the needle moving in real-time to indicate changes in the sound level.
- ✓You can use it to check the loudness of your music, the volume of your voice, or the sound of traffic, for example.
- ✓The app is easy to use, simply open it and start measuring the decibels around you.
- ✓You can use it to check the sound level of your environment to ensure it's within safe levels, or to compare the volume of different sounds.

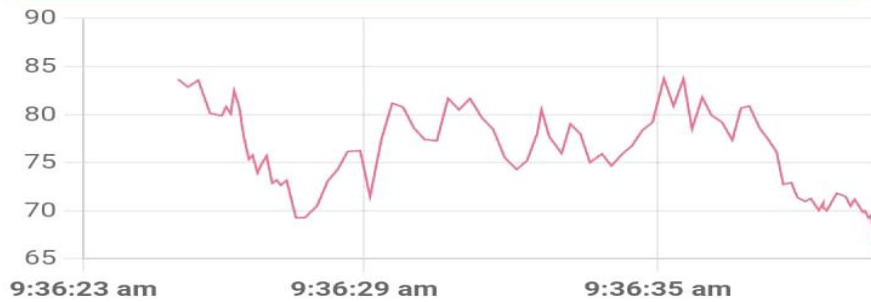




## Decibel measurement



Try 3 Days For FREE



Maximum

89.09

2023-10-26  
9:36:13

Average

80.71

Minimum

64.22

2023-10-26  
9:35:57



Share



Tools

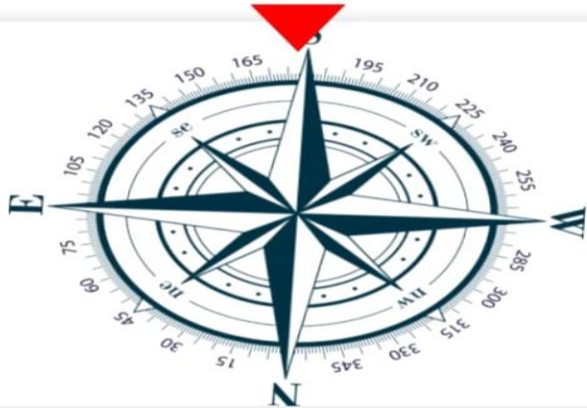
ADS

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COMPASS

BATTERY

METAL DETECTOR



Compass direction (in degrees)

178.36 °

X

-1.14

Y

-35.16


Z

16.44

μT

38.83

Share



Decibel measurement

History

Device Info

Settings Shortcuts

Tools

History

ADS

CSV

Try 3 Days For FREE

6 Items

10/26/23, 9:35 AM

Average: 80.11

Maximum: 89.09

2023-10-26 9-36-13

Minimum: 64.22

2023-10-26 9-35-57

10/26/23, 9:35 AM

Average: 80.11

Maximum: 89.09

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2023-10-26 9-35-57

10/26/23, 9:35 AM

Average: 80.11

Maximum: 89.09

2023-10-26 9-36-13

Minimum: 64.22

2023-10-26 9-35-57

10/26/23, 9:35 AM

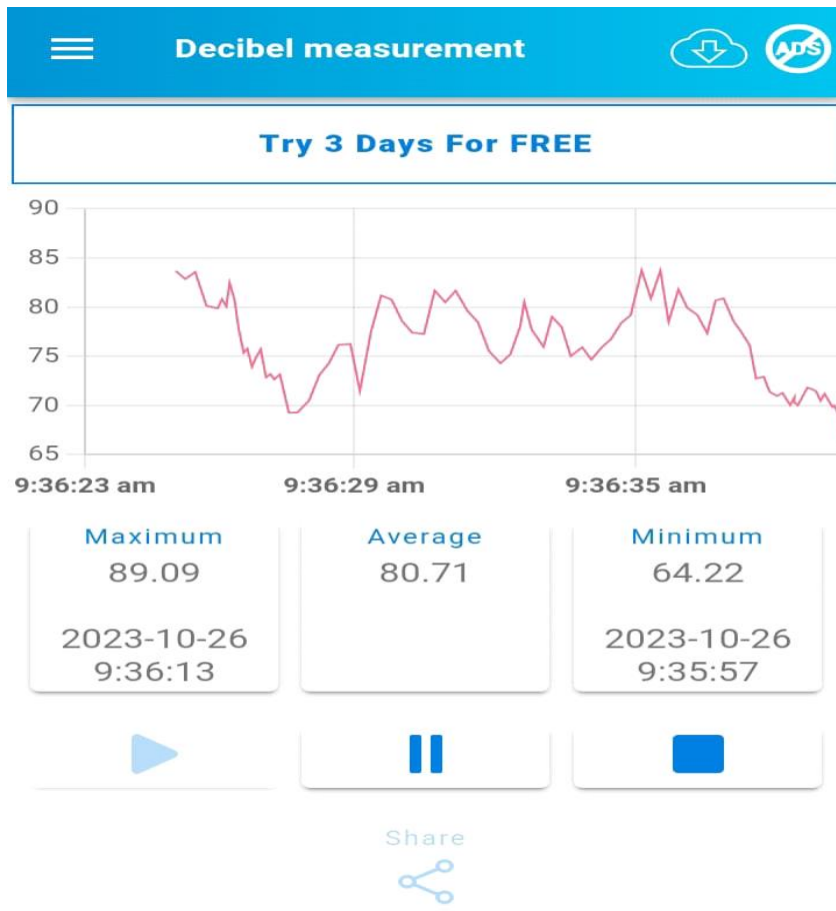
Decibel measurement

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One of the very nasty kinds of pollution that not only humans but all the other living things on this planet can't stand is noise pollution.

Well, believe it or not, we humans are solely responsible for creating 'man made environmental noise' in our beautiful world and we now have to bear the consequence.

Noise is anything that is unbearable to ear which also leads to other health conditions such as

Physiological problems,

Depression

Irritation

High blood pressure

Heart attack

why you should use the decibel meter app?

Hearing loss is the fourth highest cause of disability across the world. And it is expected to get much worse. In the US alone one in four adults show signs of noise

included hearing loss.

## What is noise pollution sound level?

A potential limitation is there on these apps measure the maximum sound level you may not be able to measure sounds over 90 dB. These are a good auxiliary option for most users.

This is the sound of traffic in India. People are exposed to these sounds on a regular basis. All these noises are really annoying and also killing your ears. #include <Wire.h>

## coding:

```
#include <LiquidCrystal_I2C.h> // Library for LCD
```

```
LiquidCrystal_I2C lcd = LiquidCrystal_I2C(0x27, 16, 2);
```

```
const int sampleWindow = 50;  
mS = 20Hz)
```

```
// Sample window width in mS (50
```

```
unsigned int sample;
```

```
#define SENSOR_PIN A0
```

```
#define PIN_QUIET 3
```

```
#define PIN_MODERATE 4
```

```
#define PIN_LOUD 5
```

```
void setup ()
```

```
{
```

```
    pinMode (SENSOR_PIN, INPUT); // Set the signal pin as input
```

```
    pinMode(PIN_QUIET, OUTPUT);
```

```
    pinMode(PIN_MODERATE, OUTPUT);
```

```
    pinMode(PIN_LOUD, OUTPUT);
```

```

digitalWrite(PIN_QUIET, LOW);

digitalWrite(PIN_MODERATE, LOW);

digitalWrite(PIN_LOUD, LOW);


Serial.begin(115200);

lcd.begin();


// Turn on the backlight.
lcd.backlight();

    lcd.clear();
}


void loop ()
{
    unsigned long startMillis= millis();                // Start of sample window
    float peakToPeak = 0;                                // peak-to-peak level

    unsigned int signalMax = 0;                          //minimum value
    unsigned int signalMin = 1024;                       //maximum value

                                                    // collect data for 50 mS

    while (millis() - startMillis < sampleWindow)
    {

```



```

sample = analogRead(SENSOR_PIN);           //get reading from microphone
if (sample < 1024)                          // toss out spurious readings
{
    if (sample > signalMax)
    {
        signalMax = sample;                // save just the max levels
    }
    else if (sample < signalMin)
    {
        signalMin = sample;                // save just the min levels
    }
}
}

```

```

peakToPeak = signalMax - signalMin;         // max - min = peak-peak amplitude
int db = map(peakToPeak,20,900,49.5,90);    //calibrate for deciBels

```

```

lcd.setCursor(0, 0);
lcd.print("Loudness: ");
lcd.print(db);
lcd.print("dB");

```

```

if (db <= 60)
{
    lcd.setCursor(0, 1);

```

```
    lcd.print("Level: Quite");

    digitalWrite(PIN_QUIET, HIGH);

    digitalWrite(PIN_MODERATE, LOW);

    digitalWrite(PIN_LOUD, LOW);
}

else if (db > 60 && db<85)

{

    lcd.setCursor(0, 1);

    lcd.print("Level: Moderate");

    digitalWrite(PIN_QUIET, LOW);

    digitalWrite(PIN_MODERATE, HIGH);

    digitalWrite(PIN_LOUD, LOW);

}

else if (db>=85)

{

    lcd.setCursor(0, 1);

    lcd.print("Level: High");

    digitalWrite(PIN_QUIET, LOW);

    digitalWrite(PIN_MODERATE, LOW);

    digitalWrite(PIN_LOUD, HIGH);

}

delay(200);

    lcd.clear();

}
```