

# NoisyDust

Noise & Dust

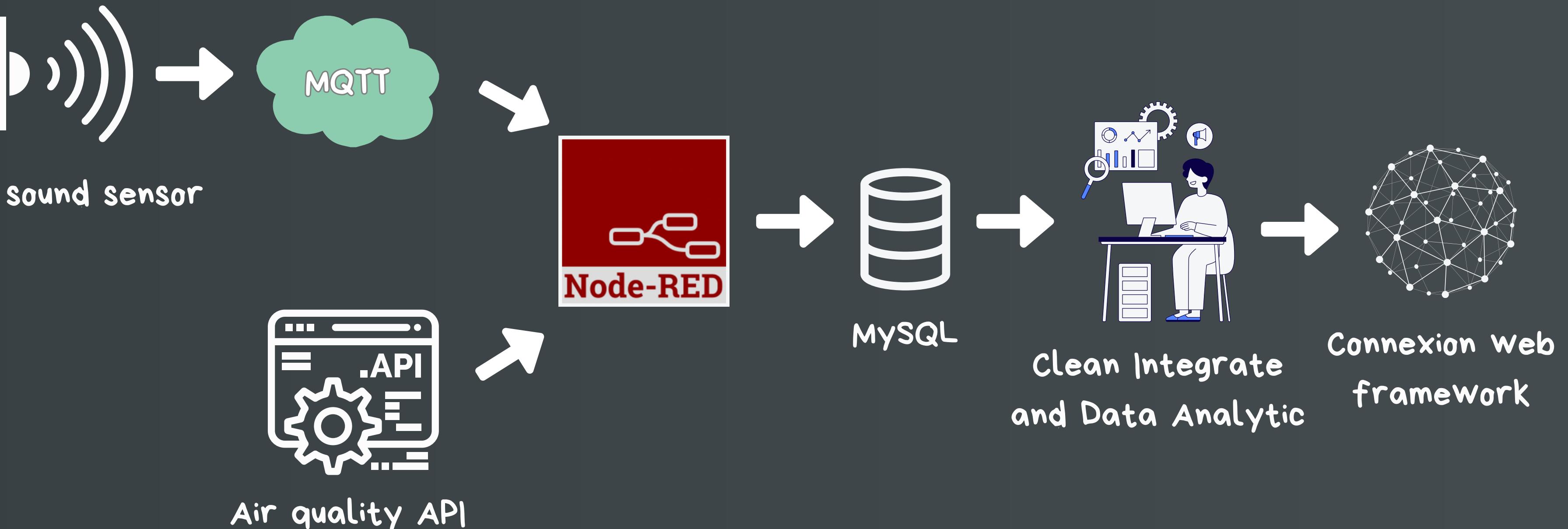


# Project Overview

This project aims to monitor noise levels throughout the day by detecting sound intensity using IoT sensors. The goal is to track sound fluctuations (noise spikes) at different times, integrating real-time data from sound detectors with secondary environmental data. The system will provide insights and visualizations to help users understand noise patterns and their potential impact on the environment and health.

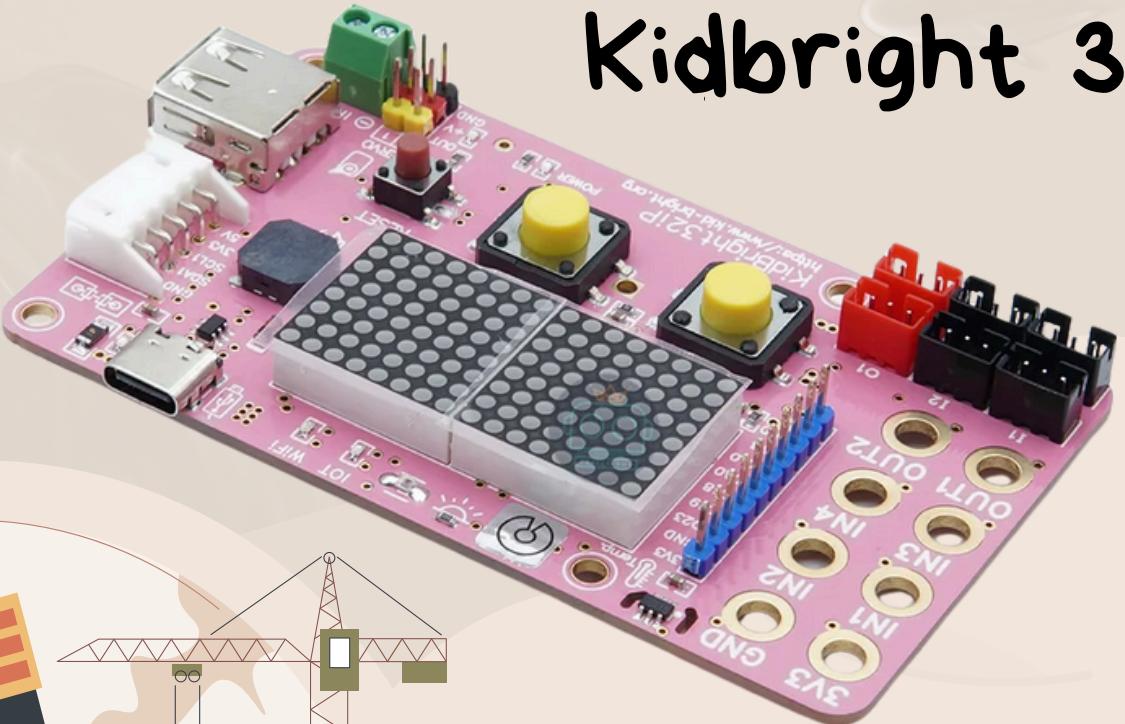


# Overall Architecture

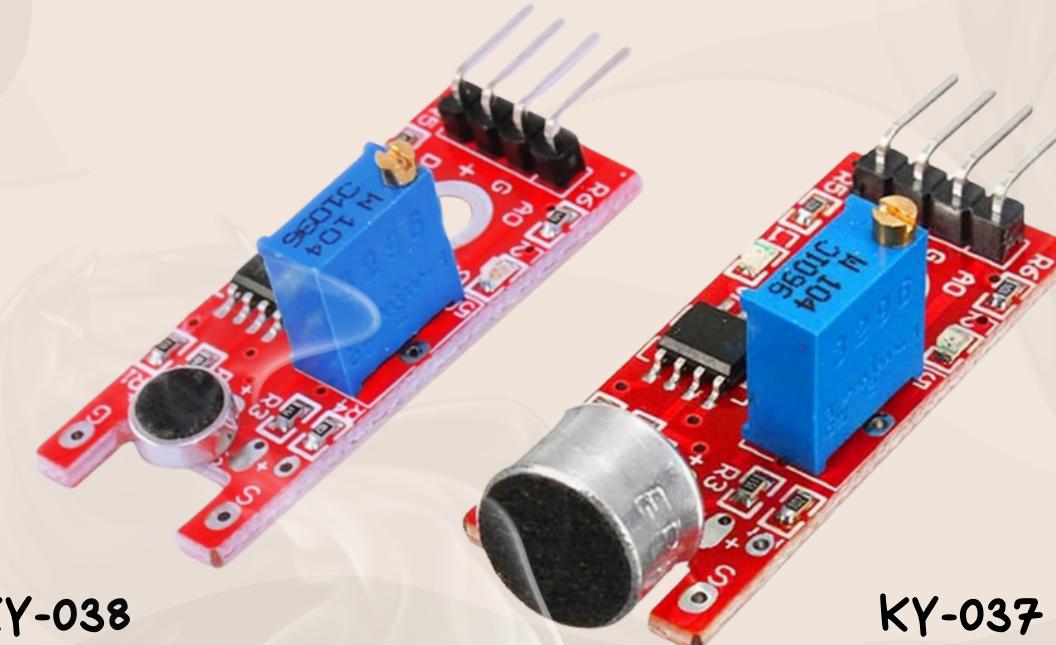


# The Primary source

Kidbright 32IP



Sound sensors



# The Primary source



```
def read_sound():
    adc_value = sound_sensor.read()

    V_out = adc_value * (V_REF / 4095)

    if V_out > V_MIN:
        dB = 20 * math.log10(V_out / V_MIN)
        return dB
    print("Sound Level: {:.2f} dB".format(dB))

while True:
    data = {
        'sound' : read_sound(),
        'lat' : 13.710654,
        'lon' : 100.612193,
    }
    mqtt.publish('b6610545928/sound', json.dumps(data))
    print(data)
    time.sleep(300)
```

Retrieve data



# The Secondary Source

OpenWeather Air  
Pollution API



Provides real-time

- PM2.5
- PM10
- AQI

<https://openweathermap.org/api/air-pollution>

Link



# Database Schema



name	type
id	int
hour	datetime
lat	float
lon	float
sound	float
pm25	float
pm10	float
aqi	float

# Connexion Framework



# API

Swagger  
Supported by SMARTBEAR

/air-quality-api/v1/openapi.json

Explore

## Air Quality Monitoring API 1.0.0 OAS3

/air-quality-api/v1/openapi.json

This API provides real-time and historical air quality data including PM2.5, PM10, AQI, sound levels, and location information.

Servers

/air-quality-api/v1 ▾

### default

^

**GET /dust** Returns all dust data entries.

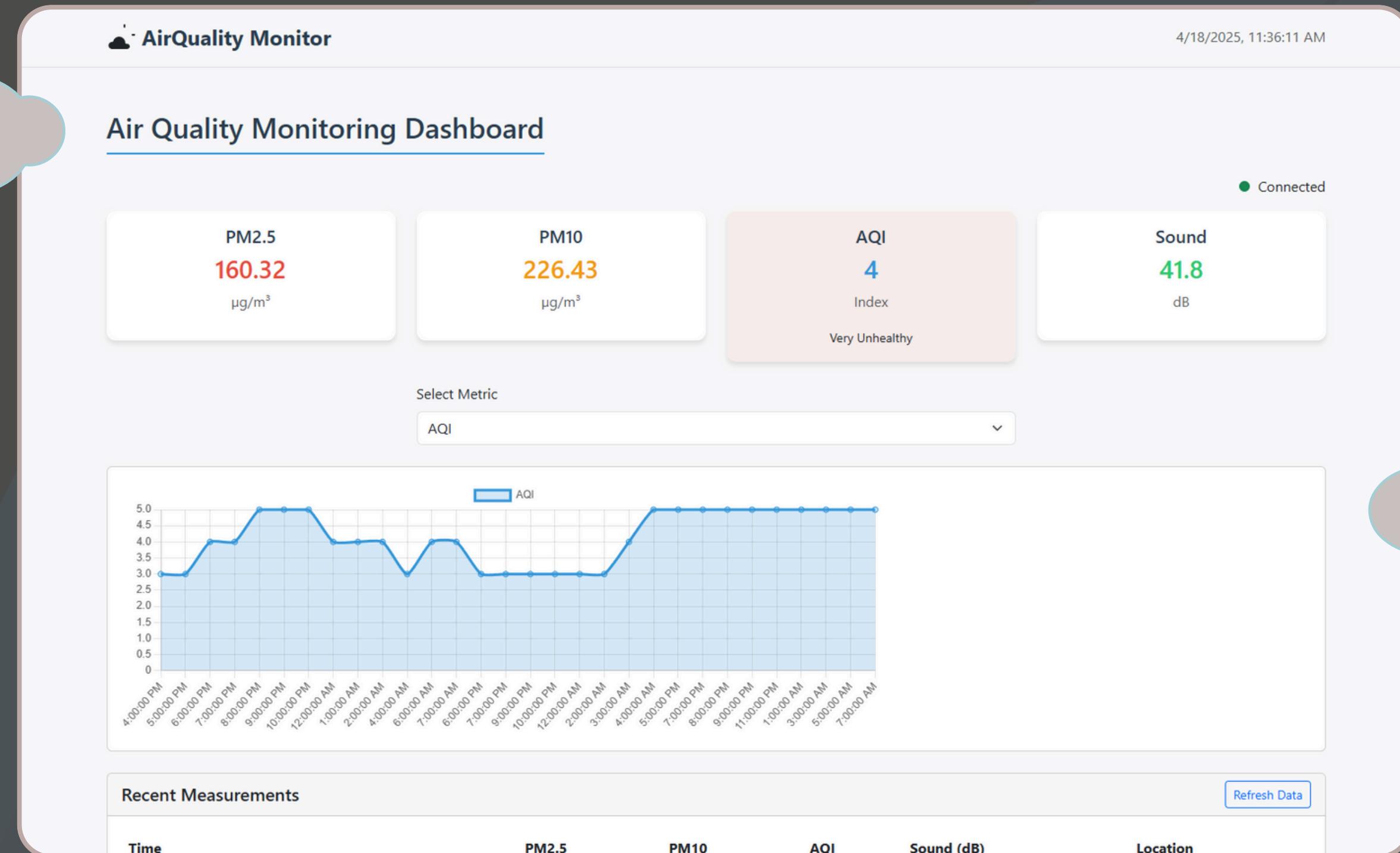
**GET /dust/average** Returns average PM2.5, PM10, and AQI over all recorded entries.

**GET /dust/{dustId}** Returns details of a specific dust entry.

**GET /projects** Returns a list of projects.

**GET /projects/{projectId}** Returns details of the specified project.

# Data Visualization





THANK YOU

