GNANAMANI COLLEGE OF TECHNOLOGY

DEPARTMENT OF BIOMEDICAL ENGINEERING

YEAR: THIRD YEAR

TOPIC NAME: NOICE POLLUTION MONITORING

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NOISE POLLUTION MONITORING

ABSTRACT:

The increasing sound pollution is one of the significant issues now days. As the pollution increasing it is giving rise number of diseases so, it has become essential to control the pollution for better future and healthy life .here we propose an air quality as well as sound pollution monitoring system that allows us to monitor and check live air quality as well as sound pollution. Monitoring in particular areas through IOT. System uses sensor to detect or sense presence of harmful gases compounds in the constantly transmit data to microcontroller. Also system keeps measure sound level and reports it to the online server over IOT. The user friendly and easy handling of the system technology is such that it can be installed in houses, schools and in small places.

INTRODUCTION:

The main objective of IOT based noise pollution monitoring system is that the pollution is a rising issue these days. As a human we need fresh to survive. If there is any kind of air pollution it's harmful for noise pollution kill more than seven million people worldwide every year. Pollution is very harmful for those people who have any kind of internal diseases on this type of people. pollution affect very fastly.In atmosphere is the full of Between this gases some are good and some are harmful for environment for certain level some gases are good for human, animals, plants but beyond certain level these created problem for services to overcome these problem system is useful because of this we can analyze the noise pollution means how many pollution level we use Internet Of Things (IOT). In this we use thing speak we can analyze previous data also using this platform in graphical form.

PROBLEM STATEMENT:

An effective natural observing framework is essential to An effective natural observing framework is essential to screen and estimate the conditions in the event of surpassing endorsed level of parameter (for example, commotion, CO and radiation levels). At the point when the items like condition furnished with sensor gadgets, smaller scale controller and different programming application turn into a self-securing and self-observing condition

OBJECTIVES:

1. To study the existing system.
2. To design the block diagram.

3. To decide the components specification &device in system.
4. To design the circuit diagram and simulate it using suitable software.
5. To design the PCB and implement hardware.
6. To test the circuit and observe the result.
7. To prepare report

WORKING:

In system we use Arduino as main controller. In system we use MQ135 gas sensor for detecting or sensing gases and also use sound sensorLM393 module for detect the sound pollution. Sensed data of sensor given to analog pin of the arduino then digital output pin are connected to LCD, buzzer and LED. If air pollution is there then buzzer will start beeping and if sound pollution is there then LED will glow. All condition of pollution display on LED and we can also analyze past data using thing speak in graphical form. Arduino is an open source prototype. Software will operate in Arduino IDE Computer code can be written and upload to the physical board. Arduino board is a board that can be functioned via Arduino IDE by sending a set of instructions to the microcontroller on it. For controlling Sensors. For arduino programming we are going to use Embedded C. We are going to build project in Embedded C and for monitoring that project we are using Cloud

COMPONENT:

1. ArduinoUNO
2. MQ135 (Gas sensor)
3. LM393 (Noise sensor)
4. ESP8266 WIFIModule
5. 16*2 LCDDisplay
6. LED
7. Buzzer

• Arduino UNO

Arduino is 8 bit microcontroller board based on the ATmega328P. The operating voltage is 5V. It has 14 pins digital input output pins (Of which can be used 6 PMWMoutput) Oscillator frequency is 16 MHz It contains everything needed to support

the microcontroller simply connect it to a computer with USB cable. It has 6 analog input pins the MQ135 is a gas sensor it used for detecting or sensing harmful gases in the atmosphere. It has wide detecting scope. It gives fast response and also it high sensitivity sensor. It is simple and long life device. They are used in air quality control equipment for building offices are suitable for detecting of NH3, alcohol, benzene, smoke CO2 etc.

Feature:

- Wide detecting scope
- Fast response and High sensitivity
- Stable and long life
- Operating Voltage is +5V
- Detect/Measure NH3, NOx, alcohol, Benzene, smoke, CO2, etc.
- Analog output voltage: 0V to 5V

• LM393 Sound Sensor:

The sound sensor module provide an easy way to detect sound and it generally used for detecting sound intensity. Module detect the sound has exceeded a threshold value. Sound is detected via microphone and fed into an LM393 op amp. The sound level adjusts through pot. The sound increases set value output are low. These module work on DC 3.3-5 voltage.

Feature:

- Output model: digital switch outputs (0 and 1, high or low level)
- Voltage Gain 26dB
- Microphone Impedance 2.2kΩ
- Microphone Frequency 16.20 kHz

  Operating voltage 3.3V-5V

• ESP8266 WIFI Module:

The esp8266 WIFI module is a self contained with integrated TCP/IP protocol stack that can give any microcontroller access to your WIFI network. The esp8266 is

capable of either hosting an application or offloading all WIFI networking functions from another application processor.

Feature:

- 2.4 GHz Wi-Fi (802.11 b/g/n supporting WPA/WPA2).
- General-purpose input/output (16 GPIO).
- Inter-Integrated Circuit (I^2C) serial communication protocol.
- Analog-to-digital conversion (10-bit ADC).
- Serial Peripheral Interface (SPI) serial communication protocol

INNOVATIONS

Smart Sensor Integration: Incorporate advanced sensors capable of detecting various types of noise, such as traffic noise, industrial sounds, and community noise, to provide comprehensive monitoring.

IoT Connectivity: Utilize Internet of Things (IoT) technology for real-time data transmission, enabling instant updates and analysis of noise levels in different locations

Machine Learning Algorithms: Implement machine learning algorithms to differentiate between normal sounds and noise pollution, improving accuracy in identifying problematic areas.

Collaboration with Local Authorities: Foster collaboration with local government authorities to integrate noise pollution data into urban planning and policy-making processes.

Privacy Considerations: Prioritize privacy by anonymizing data and adhering to strict data protection protocols to address concerns related to individual privacy.

CONCLUSION :

By using this project each and every variation we can analyze and inform nearby people in time. We can also analyze data from home using thing speak. The most important factor of this system is that it is small, cost efficient and portable. Sensors are available easily anywhere. This system fully helpful to save the lives and overcome the entire problem related to environment.