

# IOT Based Pollution Monitoring and GSM Notification System

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## Abstract –

Now a day's high decibel levels and harmful gases present in the air, air and noise pollution is now a serious problem of metropolitan society. What directly Exceptions are necessary because they affect human well-being Very caring to ensure good and better work. In the future, pollution (air and noise). This paper Internet of Things is used to check air pressure State Contaminated by riots. We too monitor temperature and humidity. Using MQ6 gas Extensive use of sensors and his MQ6 sensor for LPG detection propane, isobutene, smoking, alcohol, and CO2. Send this information repeatedly. Moreover, Framework measures and reports noise levels Equipped with MIC sensor. DHT11 sensor is a capacitive sensor Moisture detection components and thermometers temperature. The amount of water in the soil is Humidity. A useful soil moisture measurement system government expert who understands information about Dry soil areas within cities, agricultural areas, city, or in some cases Indicate that preparations are made to create these reasons Productive.

**Key Words:** ESP8266, MQ6 sensor, MIC sensor, GSM, DHT11 sensor, soil & moisture sensor.

## 1. INTRODUCTION

High decibel levels and dangerous chemicals in the air that have a direct negative impact on human health have made air and noise pollution a difficult problem in urban settings. In this approach, extra emphasis must be given to human wellness. Therefore, it is now essential to control contaminating factors like air and climate, temperature, and mugginess in order to ensure sound. Future and a successful career. In this paper, a useful the performance of the Internet of Things is used to monitor environmental factors like noise and air pollution. We also keep up a soil moisture monitoring system that helps government professionals comprehend data on the dry circumstances. soil types in horticultural areas of a city, town, or Maybe making it clear that the expected sensible Progress will be made to get such terrains ready for harvest. Asthma-causing gases like CO, smoke, and LPG are now kept from entering the atmosphere by air because they are bad for both the environment and human health. Making use of the MQ6 sensor. Determine the degree of wetness that is suitable for agribusiness since different soil dampness levels may harm crops. Sensor for soil moisture There are several ways that ecological degradation harms mankind. Temperature The wetness sensor also regulates the company's release. The sound

sensor's greater detection of sound levels has a significant impact on traffic.

Air holds back destructive gases that are hazardous to human health. We were persuaded to finish our assignment by these issues.

## 2. LITERATURE SURVEY

Therefore, it is now crucial to control the pollution (air and noise) in order to provide stable employment and a better future. In this paper, a useful performance for the Internet of Things is used for examining air conditions such as the air pollution caused by commotion. We also monitor the temperature and humidity. A system for measuring soil moisture that aids government experts in understanding information regarding interior dry soil regions the agricultural land within a town, town, or even a so that the appropriate advance steps can be done to ripen such terrain.

R.Karthik Kumar et al. investigated underwater remote sensor networks to monitor the state of water using remote sensor networks (WSN) technology powered by sunlight. Different information obtained by various sensors at the hub side, such as pH, turbidity, and oxygen level, is sent off base station through WSN. The gathered data is visualised at the base station and broken down using several leisure instruments. Marco Zennaro, Athanasios Floros, Gokhan Dogan, Tao Sun, Zhichao Cao, Chen Huang, Manzoor Bahader, Herve' Ntareme, et al. proposed a water quality monitoring framework and, building on the SunSPOT innovation, a model execution of a water quality remote sensor network (WQWSN) as a solution to the water quality monitoring problem [1]

The primary goal of the IOT Air and Sound Monitoring System is to raise awareness of the fact that air and sound pollution is a growing problem in today's world. It is critical to monitor and observe air quality in order to ensure a better future and healthy life for all. The Internet of Things (IoT) is gradually becoming more well-known due to its versatility and low cost. The ecology has been greatly harmed by urbanization and the increase in the number of automobiles on the road. Contamination can cause mild hypersensitivity reactions including irritation of the throat, eyes, and nose, as well as more serious difficulties like bronchitis, heart infections, pneumonia, lung, and irritated asthma. Checking yields estimates of air poisoning and sound contamination hotspots, which can then be decoded and introduced? This information can then be used in a variety of ways. The use of

observational data allows us to assess how bad air and sound pollution is from one day to the next [2].

Agriculture and hydrology both use remote sensing to monitor moisture. Ranchers or landscapers can use practical test equipment. Sensors that measure volumetric water content are typically referred to as soil dampness sensors. Additional sensor types measure additional Water potential is a soil moisture-related property; these sensors are commonly referred to as soil water 9 sensors, pressure meters, and gypsum blocks are all expected. Estimating For rural applications, soil moisture is important to help ranchers manage their frameworks for the water system is even more effective. Farmers are prepared to use less water overall to increase yields because they are aware of the specific soil moisture conditions on their fields. However, they are also prepared to increase yields and the quality of the harvest through more sophisticated management of soil moisture during the early stages of plant development. Soil moisture sensors are used in numerous applications of research, such as in agriculture and farming science, including water systems arranging, environmental studies, or natural science, such as investigations into the transport of solutes additionally, as assistant sensors for estimating soil breathe [3].

The use of sensors in conjunction with the internet can make contamination monitoring easier, more convenient, and flexible. Due to the internet, it is possible to obtain the information without physically visiting the location. Monitoring provides measurements of the concentrations of air pollutants and noise pollution, which can then be examined, explained, and presented. Then, there are numerous ways that this information can 10 be put to use. We can evaluate how bad air pollution and noise pollution are on a daily basis by analyzing monitoring data. To design a Wi-Fi module accessible IoTbased Air and Sound contamination observing framework and to research the level of contamination at a particular location or site Different sensors are used to gather information from the air or objects in the air. The following air contaminants will be quantified in this framework: temperature, carbon monoxide, carbon dioxide, cooking vapor, and smoke [4].

The main benefit of modern drip irrigation systems is the large amount of water that is saved because water is delivered drip by drip to the plants' root zones. In the modern era, farmers in India have been using irrigation techniques that are manually controlled, irrigating the land at regular intervals. This process occasionally uses more water, or the water may arrive later than expected, causing crops to dry out. Water shortage can harm plants even before they start to wilt. Following a slight water shortage, fruit grows more slowly and weighs less. If we use a programmed miniature regulator-based drip water system framework, which activates the water system only when there is a pressing need for water, this problem can be flawlessly corrected [5].

### 3. PROPOSED SYSTEM

It is suggested to combine systems for monitoring air quality, noise pollution, temperature and moisture, and soil into a unified system utilizing the Internet of Things.

Where harmful gases like CO, smoke, LPG, and others are found. Gas sensors MQ6 are employed. Measuring the amount of soil moisture with a soil sensor. Sensors for temperature and stickiness are used. Using sound sensors to measure the volume of a climate constantly keeping an eye on the boundaries and using Esp32 to send text messages to the mobile device with the boundary values when they are crossed. Using thingspeak and presuming it hit some sort of breaking point some powerful individuals will read the message.

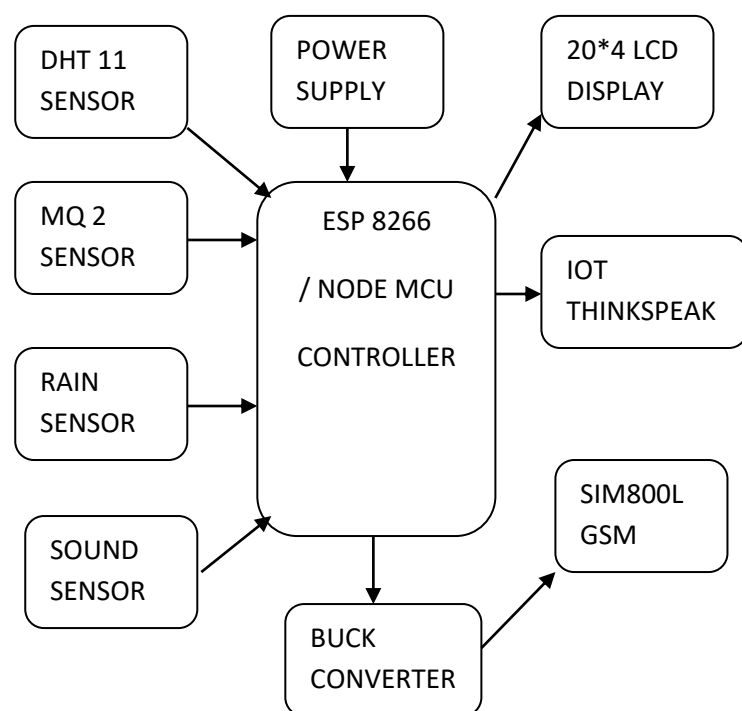


Fig1: Block Diagram

The ESP32 is linked to the gas sensor in the suggested framework, allowing us to determine which gases are most likely to damage the air. The ESP32 is also related to soil moisture. The ESP32 also features a soil sensor and a sound sensor, both of which help determine the moisture in the air. These sensor advantages are all shown in the cloud utilizing the IoT Stage application Thing speak, which helps with sound detection, and the attributes are also shared. Furthermore in clouds, as seen on Figure 1.

Advantages of Proposed System:

1. We can easily locate any dangerous gases that are present in our environment.
2. We can use Thing speak and GSM to determine the soil's mugginess and moisture content.

The process of identifying sound, air pollution, stickiness in the environment, temperature (room temperature), and dampness in the dirt is shown in full detail in Figure 2.

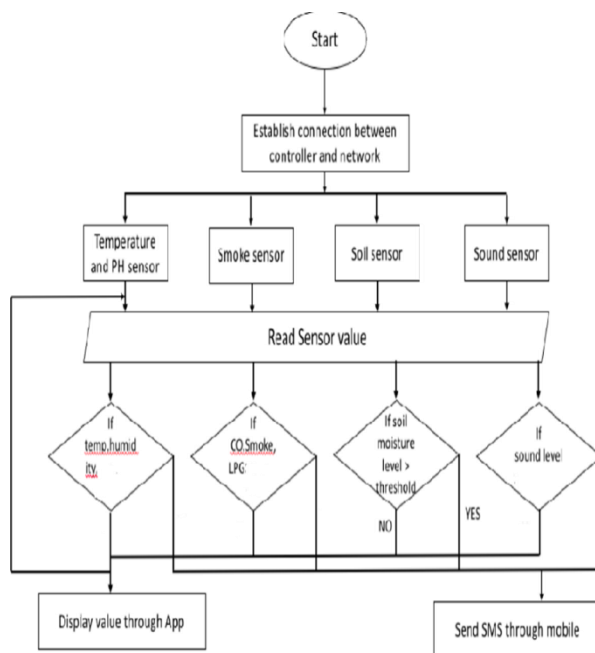


Fig2: Flow chart

Steps:

1. We used a Thing speak term called cloud to describe how humid and mucky the air was.
2. With the aid of the Arduino IDE, the person must register with a flexible number and log into the cloud.
3. When a networked association between all of the sensors, including those for temperature, humidity, and air pollution, is established.
4. After that, soil and moisture sensors read their characteristics, and these characteristics are planned with high regard.
5. Soil and moisture sensor values are cross the threshold values then you will get the notification on your registered mobile number

## 4. CONCLUSIONS

A method for detecting various climatic limits utilizing ESP32 and GSM technologies is proposed to enhance air quality. Utilizing modernizations like GSM enhances the process for analyzing different aspects of climate, such as air quality when analyzing the issue raised in this paper. in order to begin the essential step as well.

Because it is likely a thorough framework, the fact that it is surveyed in this way will be highly respected in the market. Assessing capability. This study provides a variety of models for the clever decision to screen the climate and a framework that may be built affordably. In the suggested design, many

module design capabilities were addressed. The architecture for tracking commotion and air pollution using the Internet of Things idea being used to test the two boundaries.

This model is often improved to monitor urban development and modern zones for contaminant monitoring. This model offers an efficient and affordable technique for continual climate monitoring in addition to soil dampness testing, which is important for ensuring that everyone is protected from contamination. The capability of the sensor hub and handset hub to integrate with additional kinds of sensors was tested and put into practice in this work. The sensor's precision in identifying the moisture content of the soil was demonstrated by the distinctive bend. GSM technology for water temperature and a cutting-edge identification sensor network.

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