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# Pollution Monitoring and Notification System Using IOT: A Review

**Amesh P.Dhongade[1], Prof.P.M Soni[2]**

*[1]PG student,Dept. Of Electronics and Telecommunication Engineering, Deogiri Institute Of Engineering & Management studies, Aurangabad, Maharashtra, India*
*[2] Assistant Professor,Dept. Of Electronics and Telecommunication Engineering, Deogiri Institute Of Engineering & Management studies, Aurangabad, Maharashtra, India*

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**Abstract -** Air and sound contamination are currently challenging problems in metropolitan networks due to excessive decibel levels and harmful chemicals prevalent in the air. They directly affect human flourishing and hence call for extraordinary consideration So, it is currently crucial to regulate the pollution in order to ensure a stable job market and a better future (air and commotion). This research makes a compelling case for how the Internet of Things might be used to monitor changes in the air's atmospheric conditions as a result of turbulence. We also check the humidity and temperature. employing a MQ6 gas sensor and a MQ6 sensor for LPG identification, which can detect a variety of gases including CO2, isobutane, propane, and smoke. Send this information multiple times. Additionally, the system keeps using the MIC sensor to estimate and announce the sound level. A capacitive component for detecting wetness and a thermometer temperature are both present in the DHT11 sensor. The clamminess of the dirt gives an idea of how much water is there. In order to ensure that the necessary preparations are completed, state to make these grounds usable. A framework for estimating soil wetness that aids government experts in understanding information about within dry soil regions the rural land inside a town, town, or maybe an.

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

## 1.INTRODUCTION

Air and noise pollution have become a challenging problem in urban areas due to the high decibels and hazardous chemicals that are present in the air and directly affect human health. In this regard, uncommon thought is necessary for human prosperity. In order to ensure sound, it is therefore crucial to manage impure aspects like air quality, noise, temperature, and humidity. a successful career and the future. During this explanation, a helpful The Internet of Things is used to monitor the environment's climatic conditions, such as air pollution and disturbance. Additionally, we maintain a dirt moisture monitoring system that aids government experts in gathering information on dry conditions. stating absolutely that the anticipated reasonable progressions will be completed to design such territories for collect will be done for green locales' dirt types inside a city, town, or Currently, air prevents harmful gases from entering the atmosphere that harm both human health and the environment, such as CO, smoking, and LPG, which are known to cause asthma. making use of the MQ6 sensor. Determining the appropriate level of soil moisture is essential for agricultural operations since different soil moisture levels may harm crops. soil moisture sensor Different biological contaminations cause serious problems for humankind. Temperature Additionally, the organization's arrival is controlled by the dampness sensor. The increased sound levels that the sound sensor can detect have a significant role in the gridlock that occurs during rush hour. Air is used to keep dangerous gases that are harmful to human health at bay. We decided to complete this project as a result of these problems.

## 2. LITERATURE REVIEW

1) The Internet of Things (IoT) is a component of the future of the internet that may be described as a robust global association infrastructure with self-planning capabilities based on standard and interoperable communication shows in whereby 'things'—physical and virtual—have personalities, real properties, and virtual attributes utilize devious association focuses that are consistently organized within the personalities, and association of information.

2) Because of a number of factors, including population growth, increased automobile use, industrialisation, and urbanization, pollution levels have increased over time. These factors all directly undermine human progress. affecting the population's overall strength as it is displayed. to consider During this task, We'll create an Internet of Things-based system for tracking air pollution. using a web server, monitor the air quality online and send a warning. when the air quality drops below a certain threshold.

3) The soil sogginess sensors evaluate the volumetric water content of the soil. Soil moisture sensors indirectly evaluate the volumetric water content since the disposal, drying, and weighting of a model are essential for the direct gravimetric measurement of free soil sogginess. Using a different type of the dirt, such as dielectric consistency, electrical resistance, or coordinated neutron effort, acting as a continuation of the moisture content. soil moisture sensors Determine the dirt's water volume content. Given that an example's evacuation, drying, and weighing are Soil wetness is essential for the direct gravimetric determination of free soil dampness. Sensors implicitly use another method to determine the volumetric water content. standard for the dirt.

4) By analyzing information, we can regularly determine how bad the contamination of the air and the disturbance is. To design an open-source Wi-Fi module IoT-based air and sound pollution detecting system and to investigate the degree of contamination at a particular location or place A variety of sensors are used to collect information about the air or airborne objects. The associated air pollutants will include Temperature, carbon monoxide, carbon dioxide, and other parameters are assessed by this system. smoke and odors from cooking

5) The main benefit of modern drip irrigation systems is the significant amount of water that is conserved because water is delivered drip by drip to the root zones of the plants. Ranchers in India have been using cutting-edge water system techniques that are physically managed, regularly saturating the land. This exchange occasionally uses more water, or the water may arrive later than expected, resulting in accepts drying out. Lack of water can harm plants before they start to shrivel. A natural product develops more slowly and weights less with a little water shortage. If we implement a specialized little controller-based trickle water framework system, which starts the water structure This problem arises just as there is a pressing need for water. can be fixed correctly

6) In this project, we'll build an IOT-based system for assessing air quality. When the air quality falls below a specific threshold, that is, when enough dangerous gases, such as CO2, smoking, alcohol, benzene, etc Since NH3 is present in the environment, we will issue a warning. To for us The air quality will be displayed on the LCD and on the virtually no problems, PPM web page The MQ135 sensor is the best option because it can accurately measure gas 10 focuses and can identify the majority of harmful gases. watching the air quality. For this IOT project, you can use a computer or a mobile device to remotely check the contamination level. This structure can be presented. anywhere, and it can also activate a device, such as turning on the exhaust fan. or, alternatively, informing the client by mail or SMS when contamination levels exceed a specific threshold edge.

7) Due to unwise openness in class, these problems and various medical situations are developing for the resources and understudies. Additionally, the resources and students are trapped indoors for nearly eight hours in this climate, which causes physical mental hazards This work coordinates an IOT-based Wi-Fi module (ESP8266). includes a unit for measuring air quality. Sensors are assigned to monitor the changes over time. the climate that ultimately determines the degree of climate contamination. The results are visible in a running program that ensures security and more keep track of the students' carbon dioxide (CO2) levels

8) The Internet of Things (IoT) is a widely known invention that enables real electronics, vehicles, home appliances, and so forth to communicate and even work together. According to estimates, air pollution kills over 1.5 million people annually in India, ranking as the fifth most lethal killer. observing frameworks in use low responsiveness, poor accuracy, and necessitate research center evaluation, are the obstacles to the current structures. As a result, improved checking frameworks are needed. We suggest a three-phase air contamination monitoring system as a solution to these problems. framework. An Internet of Things kit using gas sensors and the Arduino IDE A Wi-Fi module was developed, and the climate). This device can truly be placed.in various cities to monitor the air quality. The sensors gather data from the environment We also developed an Android app that allows 11 users to access cloud-based data on air quality. In the unlikely event that a customer travels to a particular objective, the overall route contamination level is predicted, and a notice is delivered if the degree of pollution is too high, to the client.

## 3. PROPOSED WORK

IoT is being proposed to combine air, sound contamination, temperature and dampness, soil perception and notice frameworks, and create a single system. Zone with dangerous gases, like smoke, CO, LPG, and others. Gas sensors MQ6 are used. determining the amount of soil moisture with the use of a dirt sensor. Sensors for temperature and tenacity are activated. Using sound sensors, uproar force may be determined. monitoring the limits constantly and using Esp32 to send messages to the cell containing the limit values when they are crossed using thingspeak and expecting it to reach a particular limit There will be some convincing people who read the message. The ESP32 and the gas sensor in the suggested structure enable us to identify the gases that are likely to be harmful in the air. The ESP32 is also related to sogginess of the soil. This helps the ESP32 distinguish between moisture also features a dirt sensor and a sound sensor. These sensor benefits are completely displayed in the cloud using the IoT Stage application Thingspeak, which aids in sound recognition, and the characteristics are also relocated. also in mists

Through a message to the user

The GSM module functions as a doorway for data communication between the ESP32 and the cell phone. SMS via GSM module to mobile.

Through Cloud

The data obtained from all of the sensors in a cell phone through an application will be displayed through the Cloud Thingspeak online interface. When the measured qualities are high and threaten to harm the climate in a 52 particularly dirty area, with added heavy rain, the contamination boundary values are sent via message. Thingspeak is a iot platform which is used to monitor the data wirelessly generated by the sensor in these project . we use MQTT protocol and read write

API keys in order to establish communication between Node MCU and thing speak server. At the thingspeak server i have created field tabs for the sensor which I used in the project and configured them as well.The data at the thingspeak server is updated by every 30 seconds.In these project we use AC-to-AC transformer which steps down 230v peak to peak voltage to 12 v peak to peak AC voltage .These voltage which consist of ripple fed to 7805 voltage regulator along with filter capacitor which gives ripple free 5v dc output and it is supply to circuitry.In these project we use Node MCU as computing device in order to process the data from sensor. Here we use four sensor DHT11, soil and moisture sensor, sound, MQ6 sensor.

## 4. CONCLUSIONS

A framework for viewing various climatic restrictions using ESP32 and GSM technology is advised to work on the quality of the air. Utilizing Modernizations like GSM focus on the methodology for studying various environmental aspects, such as air quality when examining the problem raised in this paper. with the intention that the crucial step may also start. Given that it may only be a comprehensive structure, this technique of looking at it will be very well known in the market. determining a limit Throughout this research, numerous models for the deft maneuver to monitor the climate and an expensive system that was successfully introduced are provided. In the suggested plan, the plan capacities of several modules were evaluated. The Internet of Things concept is being tested for two boundaries using the air pollution and disturbance observing system. This model is regularly updated to track newly developing urban regions and modern zones for pollution checking. This approach provides a beneficial and affordable method for advancing environmental testing in addition to soil moisture testing in order to protect everyone from pollution. The ability of the sensor center point and handset center point to integrate with various types of sensors was tested and demonstrated in this work. The sensor's accuracy in determining the soil's moisture level was highlighted by the brand name twist. GSM technology for water temperature and a deftly organized distinguishing proof sensor system.

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