POLLUTION MONITORING AND NOTIFICATION SYSTEM USING IOT

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

---***---

Abstract - -*Due to high decibel levels and harmful gases present in the air, air and sound pollution are now serious issues in metropolitan urban communities. which directly affect human well-being and thus require a exceptional consideration So, in order to ensure a good job and a better future, it is now crucial to control the contamination (air and noise). This paper provides an efficient performance for the Internet of Things is used for checking the air's barometric conditions contamination caused by commotion. We also monitor the temperature and humidity. utilising a MQ6 gas sensor and a MQ6 sensor for LPG detection recognising a wide range of gases, such as propane, isobutane, smoking, alcohol, and CO2. Send this information repeatedly. Additionally, the framework keeps measuring and reporting the sound level using the MIC sensor. In the DHT11 sensor is a capacitive Component for detecting moisture and a thermometer Temperature. How much water is in the soil is measured by its dampness. A system for measuring soil moisture that aids government experts in understanding information about interior dry soil regions the agricultural land within a town, town, or possibly a In order to ensure that the necessary preparations are made, state to make these grounds productive.*

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

1. INTRODUCTION

Due to the high decibels and hazardous gases that are present in the air and directly affect human health, air and noise pollution have become a challenging issue in metropolitan areas. Human wellbeing requires special consideration in this way. Therefore, in order to ensure sound, it is now crucial to control contaminating factors like air and clamour, temperature, and mugginess. career and a better future. In this essay, a productive The Internet of Things' performance is used for observing the climate's climatic conditions, such as contamination from the air and noise. Additionally, we maintain a soil moisture monitoring system that aids government experts in understanding information about dry conditions. horticultural regions' soil types within a city, town, or Perhaps stating unequivocally that the anticipated prudent advancements will be done to prepare such terrains for harvest. Currently, air prevents harmful gases from entering the atmosphere that harm both the environment and human health, such as asthma such as CO, smoke, and LPG. employing the MQ6 sensor. Different soil dampness levels may harm crops, so it's important to determine the level of moisture that is appropriate for agribusiness. soil moisture sensor There are various ecological contamination causes significant problems humanity. Temperature Additionally, the dampness sensor controls the release of the company. The increased levels of sound that the sound sensor detects play a big role in traffic. Destructive gases that are harmful to human health are held back by air. These problems convinced us to complete this task.

2. LITERATURE SURVEY

The Automatic Water System Framework on Detecting Soil Dampness Content has been proposed by Nagarajapandian M et al. The rapidly growing appetite necessitates the quick innovation in food production has improved. In a nation like India, where horticulture plays a significant role in the economy and where the climate is favourable, isotropic, yet we don't seem to be ready to fully utilize horticultural resources Using this is primarily motivated by a lack of rainfall and a lack of land-based water storage. Numerous grounds are becoming unusable due to the continual removal of water from the earth, which is lowering the level of underground water. entering the areas of unwatered land gradually Another The spontaneous use of water provided a significant justification for this.since a substantial amount of water is wasted.

 The IOT Based Air Contamination Monitoring System Using Arduino has been proposed by Poonam Pal et al. The level of contamination has increased over time due to numerous factors like the rise in population, increased use of vehicles, When there are greater amounts of industrialization and urbanisation, which have detrimental effects on people by directly affecting the health of the population exposed to them,The air contains harmful gases like CO2, smoke, benzene, NH3, and alcohol. We are ready to screen it without any issues because the air quality in PPM will be displayed on the LCD and the website page. You have the choice to in this Internet of Things project monitor the contamination level using your PC or portable from anywhere. Screening the air and sound is the main objective of the Air and Sound Checking System. Since contamination is a growing problem

in today's world, it is crucial to Take note of the air quality and conceal it for a significantly improved future and healthy living for everyone. The Internet of Things (IoT) is becoming more and more well-known day by day due to its adaptability and low handling costs.

The Remote Soil Dampness Monitor has been proposed by L. Rama Devi and others. Soil dampness sensors measure the volumetric water content of the soil using the Internet of Things. due to the direct The estimation of free soil dampness by gravity is necessary. removing, drying, and weighing the soil dampness example Sensors implicitly determine the volumetric water content. utilising a further characteristic of the dirt, as a bridge for the dampness content, like opposition, dielectric steady, or cooperation with neutrons[1]. Soil moisture sensors gauge the the dirt's volumetric water content, which provides us with the dirt's level of moisture.

3. PROPOSED SYSTEM

Proposing the combination of air, sound pollution, temperature and moisture, soil observation and notice systems, and creating into a single system using IoT. Location of dangerous gases, such as CO, smoke, LPG, and others.MQ6 gas sensors are used. using a soil sensor to determine the degree of soil moisture. temperature and stickiness sensors are put into action. Detection of clamour intensity making use of sound sensors Constantly monitoring the boundaries and using Esp32 to send messages to the cell phone with the boundary values when they are crossed. Using thingspeak and assuming that it reached a certain breaking point Some influential people will read the message.
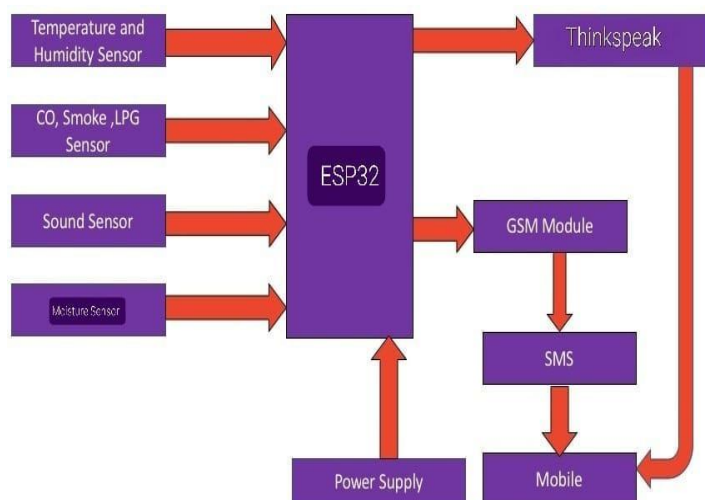

Fig1: Block Diagram

In the proposed framework, the gas sensor is connected to the ESP32, allowing us to identify the gases that are most likely to cause damage in the air. Soil dampness is also connected to the ESP32.which aids in identifying the

moisture in the ESP32 also has a soil sensor and a sound sensor. which aids in sound recognition, these sensor benefits are all displayed in the cloud using the IoT Stage application Thingspeak, and the qualities are also transferred. additionally in clouds, as shown in Figure 1.

Advantages of Proposed System:

- We can easily locate any dangerous gases that are present in our environment.

- We can use Thingspeak and GSM to determine the soil's mugginess and moisture content.
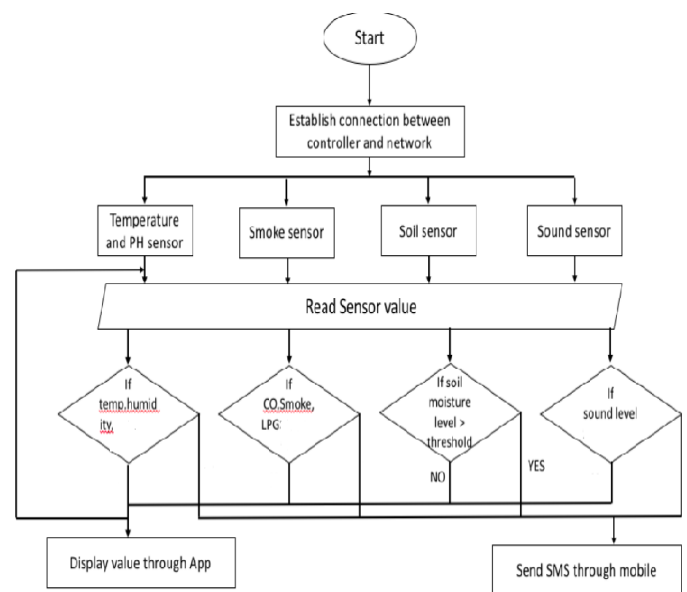
4. SYSTEM DESIGN

Fig2: Flow chart

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.

Steps:

- We used a Thingspeak term called cloud to describe how humid and mucky the air was.

- With the aid of the Arduino IDE, the person must register with a flexible number and log into the cloud.

- When a networked association between all of the sensors, including those for temperature, humidity, and air pollution, is established.

- After that, soil and moisture sensors read their characteristics, and these characteristics are planned with high regard.

- Soil and moisture sensor values are cross the threshold values then you will get the notification on your registered mobile number.
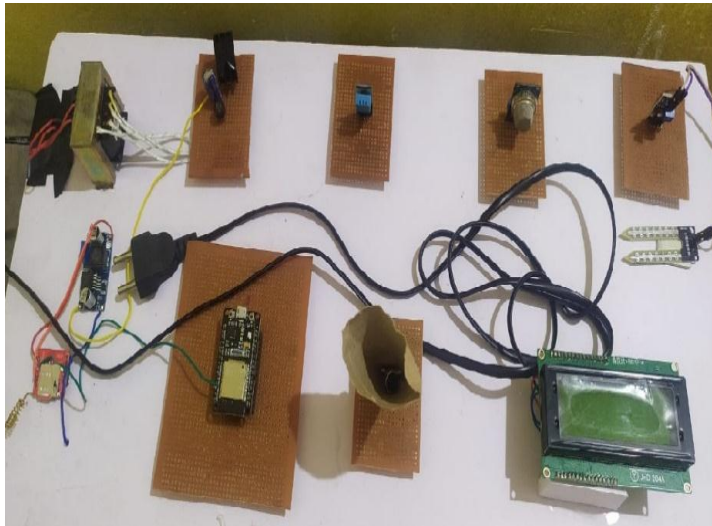
5 . RESULTS

Fig 3: Prototype

The output of this pollution monitoring as shown in Figure3

We track a few gases and concentrated energy disturbances that can lead to air deterioration. Additionally, the level of commotion flammable gases such as smoke, LPG, isobutane, and propane Moreover, by using this, Carbon Dioxide is Monitored in Real-Time. Framework. We can take the best possible action with IoT thanks to continuous monitoring to prevent any major disasters. The device will provide the signal if the air and noise contamination increases from the specified maximum value. (selected by the creator). Each IoT device is unique.by the corresponding channel ID The computerised value of the air is displayed by this application, which can be used to obtain information about air and sound contamination. Sound contamination is another. The framework for observing sound and air solves the problem of the extremely dirty areas that is a crucial issue that needs to be addressed.

5. IOT LAYOUT

Fig 4: shows the humidity and temperatur
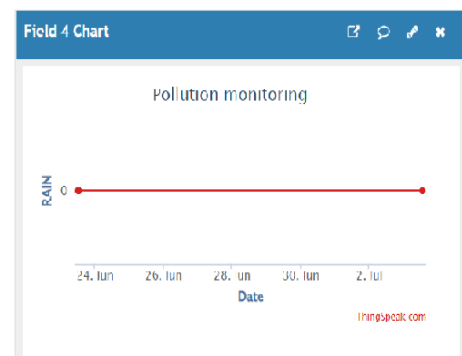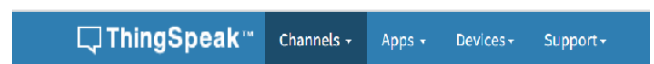

Fig 5 :shows the Gas and Noise

Fig 6 :moisture/ water content in soil

6. CONCLUSION

To improve the quality of the air, a system for noticing various climatic boundaries using ESP32 and GSM technology is suggested. Making use of Modernizations like GSM improve the method for examining various climate aspects, such as air quality examining the problem raised in this paper. so that the necessary move could also be started. The fact that it is surveyed in this way will be incredibly acknowledged inside the market because it may very well be a comprehensive framework. evaluating capacity. The cunning move to screen theclimate and a cost-effectively installed framework are given a number of models throughout this paper. Different modules' design capabilities were discussed in the proposed design. The air pollution and commotion monitoring framework with the Internet of Things concept being test-run for examining two borders. This model is frequently enhanced to keep track of developing urban areas and contemporary zones for contamination checking. to keep an eye on everyone protection from contamination, this model provides a useful and Low cost method for ongoing climate monitoring additional soil dampness testing This work tested and implemented the sensor hub and handset hub's ability to integrate with other types of sensors. The trademark bend illustrated the sensor's accuracy in determining the dirt's moisture content. water temperature GSM technology and a novel identification sensor network.

REFERENCES

[1] Aaina Venkateswaran , Harsha Menda P and Prof Priti Badar " An IoT Based System for Water Quality Monitoring" International Journal of Innovative Research in Computer and Communication Engineering Vol. 5, Issue 4, April 2017

[2] N Vijaykumar ,R Ramyas, "The real time monitoring of water quality in IOT environment", IEEE sponsored 2nd international conference on innovations in information, embedded and communication systems 2015.

[3] Nagarajapandian M, Ram Prasanth U, Selva Kumar G, Tamil Selvan S, "Automatic irrigation system on sensing soil moisture content", International journal of Innovative Research in Electrical, Electronics, Instrumentation and Control Engineering, Volume 3, Issue 1,2015

[4] Palaghat Yaswanth Sai "An IoT Based Automated Noise and Air Pollution Monitoring System" Vol 6, Issue 3, March 2017.

[5] Samer Mansour, Nidal Nasser, Lutful Karim, Asmaa Ali, "Wireless Sensor Network-based Air Quality Monitoring System", International Conference on Computing, Networking and Communications, Wireless AdHoc and Sensor Networks(IEEE), 2014.

[6] Nikheel A. Chourasia, Surekha P. Washimkar," ZigBee Based Wireless Air Pollution Monitoring" International Conference on Computing and Control Engineering (ICCCE 2012), 12 & 13 April, 2012

[7] Navreetinder Kaur, Rita Mahajan, Deepak Bagai,"Air Quality Monitoring System based on Arduino Microcontroller," International Journal Innovative Research in Science, Engineering and Technology (IJIRSET),Vol 5, Issue 6- June 2016.

[8] Dr. A. Sumithra, PJ.Jane Ida, PK. Karthika, Dr. S. Gavaskar, "A smart environmental monitoring system using internet of things," Members, IEEE Vol 3, Issue 3-Oct 2013

[9] Dhruvil Shah, PrathmeshKudale, Prasad Shirwadkar, Samuel Jacob, Iot Based Air and Sound Pollution Supervising System, IOSR Journal of Engineering, 2018.

[10] Arushi Singh, Divya Pathak, Prachi Pandit, Shruti Patil, Prof. Priti . C. Golar, IOT based Air and Sound Pollution Monitoring System, International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, 2017.

BIOGRAPHIES

Amesh P. Dhongade
PG student ,
Dept.
Electronics and
Telecommunication Engineering,
Deogiri Institute Of Engineering
& Management studies,
Aurangabad, Maharashtra, India

Prof. P.M Soni
Asst. Professor,
Dept .
Electronics and
Telecommunication Engineering,
Deogiri Institute Of Engineering
&Management studies,
Aurangabad, Maharashtra, India