.

Smart IOT based Pollution Forecasting(PM2.5) System For Smart City

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ABSTRACT

Today air pollution has arisen as a global public health problem and is identied as a major environmental health hazard by agencies such as the World Health Organization (WHO) . An increase in the concentration of pollutants-both gaseous and solid-is among the largest health risk in the world. Air pollution is responsible for 55 lakh deaths of people every year all over the world. Air pollution is the forth main reason for large numbers of death and causing respiratory diseases all over the world. Recently, air pollution acquired critical dimensions and the air quality in the most cities that monitor outdoor pollution fail to meet WHO guidelines for safe level. The levels of PM2.5 and PM10 (Air-born particles smaller than 2.5 micrometers in diameter and 10 micrometers in the diameter).

In existing system when device detect PM2.5 particle at that time device causes jam because this device totally depend on hardware in that pipe and filter papers are used to calculate how many particle was obtain for particular time. This system can not work automatically. To overcome this problem in our project we have try to solve the real time problem In this we are using the sensor like MISC6814, MCM811,PM2.5 and used the AWS Cloud for data storage purpose,ESP32Microcontroller,OLED Display and power supply using that detects harmful gaseous and update on webapp also alert to the people.

Keyword : *MISC6814, MCM811,PM2.5, AWS Cloud, ESP32 ,OLED Display.….*

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1. INTRODUCTION

Today Air pollutionis an environment problem not just real time problem but it automatically improved in all over world. Multiple factors contribute or support to the air pollution like smoke,fogg,smoke are generating from the vehicles and industrial as well as the dust particle SO2,CO2,PM25 are the major components. Which are helps to making our ppllution particular matter is the 30time less than the human hair so for that we use electronic microscope.it is very small particle that may be in air pollution present solid or liquid form[1].

In air pollutionmonitoring main advantage of IOTimplementation is cost effective hardware in that main component of pollution is a pollutant sensor(PM2.5) and ESP32 controllers,MISC6814,MG811,AWS Cloud for detecting harmful particles[2].

Pollution level increasing day by day also increase the level of harmful gases.it affects on atmosphere in number of ways like global warming,acid rains and climate change.this level harmful to human,animals and plants. According to our survey environmental protection agency(EPA)six common air pollutants are obtained that is Ozone,Sulphar Oxides,Carbon monoxides,Nitrogen oxides,lead and Particulate matter. All these pollutants are harmful to human being and the environment[3].

2. LITERATURE SURVEY

System contains the date and time when it detect high level pollutants or gases also provide the warning messages is based on google,minimum limit for Email messages, 2000 Emails per day send and received into 24 hrs period of time.this limit useful applicable in Web Browser or Mobile App[1].

We are think about the air pollution data how to show in creative and attractive way .People can not waste its valuable time to read the 100 pages of about system so for that deploy a screen that display the updation of pollution, in the form of graph and animation[2].

We have visit to the Maharashtra Pollution Control Board in Nashik and survey about the in that we observe and give information related to the pollution control so in this experts said to us when detect PM2.5 particle that time device jam because this device totally depend on hardware in that pipe and filter papers are used for to calculate how many particale was obtain for particular time.This system can not work automatically.To overcome this problem in our project we have try to solve the real time problem In this we are using the sensor like MISC6814, MCM811,PM2.5 and used the AWS Cloud for data storage purpose,ESP32 Microcontroller ,OLED Display and power supply using that detect harmful gaseous and update on webapp also alert to the people.

3. EXISTING SYSTEM

The Existing System work manually hence they need special attention or in other words manual system require manpower to look after its efficient working.The drawback of these existing system are focused on,and aimed to be overcome in our proposed system.

In previous input as dust sensor and gas sensor used for processing values send to the Rpi and passed to Email as input so the output in existing only Email notification sent to the authorised person.

In existing detect pollution from vehicles is sensed by using MQ7 and for that use Arduino board.

Fig -1 Existing System

4. PROPOSED SYSTEM

The main purpose of the project is to design IoT based pollution forecasting(PM2.5) alerting system. The hazardous gases like CO,CO2 and PM2.5,MOX,TVOC air pollutants were sensed and displayed each and every second on the system. If these gases exceed the high level then an alert is generated immediately and also an alert message is sent to the authorized person.

In this system hybrid application implement for showing the details related to changed in environment. API design in our system because live updation are showing to each and every user as individually.

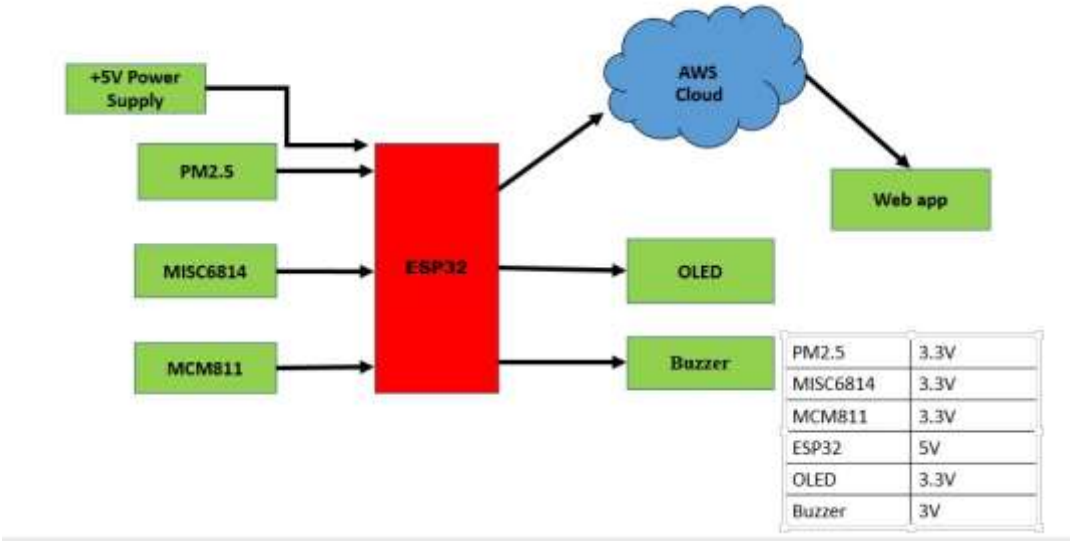

Fig -1 Proposed System Architecture

4.1 PROPOSED GRAPH

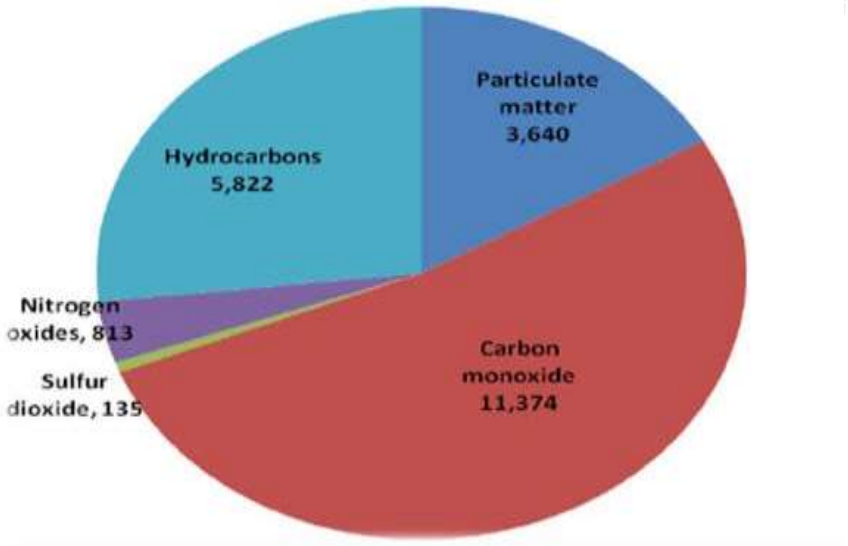

Chart -1 Proposed Graph

4.2 ADVANTAGES

1. Highly accurate system for monitoring purpose.
2. Low cost and low power consumption.
3. It is eco Friendly.
4. Very High range and multi-mode connectivity.

5.CONCLUSION

This Proposed System introduces a Wireless Sensor Network (WSN)-based air quality monitoringsystem using IOT central server and gases sensors.This Proposed System is also used for pollution monitoring purpose in cites. The Proposed system provides mechanism sending sensor data wirelessly.In this System provides IOT Based notification through Webapp,Email,API and also display live updations.If harmful gases detect then it will be provide alert to people,society using buzzer .

6. REFERENCES

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