SYNOPSIS

1.Name of the College :Bharati Vidyapeeth College of Engineering Navi Mumbai

2.Name of the Course : B.E. (Electronics & Telecommunication) Div: A

3.Name of the Students : 1)Sakshi Bhavsar (07)
: 2)Mamata Gotal (22)
: 3)Prapti Kanojiya(35)
: 4)Chetana Gopale(21)

4.Name of the Guide : Prof.Dr. Swati Jha
Department of Electronics & Telecommunication Engineering,
Bharati Vidyapeeth College of Engineering Navi Mumbai

5.Title of Project : IoT based Air Quality Monitoring in Taloja, Navi Mumbai

6.Problem Definition : Air pollution is a matter that concerns every individual in one or the other way. The increasing need of technology has brought many negative aspects with it, one of which is pollution. The vehicles that we use, or the products that are manufactured in the factory are all its causes. Keeping this in mind there are many setups done by government to detect the quality of air in the atmosphere. There are air quality index board to detect the air quality. But this doesn't solve the problem of pollution. We need to find ways to reduce the existing pollution from atmosphere. The breathing problems caused in Taloja area are getting severe day by day. And since this is an industrial area it is under a high risk of getting worse.

7.Introduction : Air pollution is a growing threat to human health and natural environment. According to the world health organization nearly eighty percent of the people living in urban areas breathe air worse than WHO standards leading to global environment threat. In this project, we will build IOT based device which can be used for monitoring the air quality in PPM (Parts Per Million). When the air quality goes down beyond a certain level, and the amount of harmful gases present in the air like CO,CO2,SO2,NH3 etc. increases, this device will monitor these gases and get the concentration value of it, and further we aim to reduce the intensity of those gases by reacting it with neutralizing agent. The system can be installed anywhere but mostly in industries and houses where gases are mostly to be found.

Advantages :1)The data collected from air quality monitoring helps to assess impacts caused by poor air quality on public health.
2)It will helps us to determine if an area is meeting the air quality standards devised by CPCB,WHO
3) Monitoring air quality throughout a particular region could help to reveal how pollution travels through the region and could help to indentify pollution"hot spots"

Applications :1) Locating contamination problem areas and understanding their space time changes
2) Complying with atmospheric air protection legislation
3) Obtaining the necessary information if alert thresholds are breached

8.Relevance/Motivation : The major motivation behind our project is to contribute to bring overall improvement in the quality of environment, considering the health of people living in that area.

9.Literature Review:

Literature Survey				
Sr no.	Publisher	Paper Title	Author	Remark
1.	IEEE PAPER 1 (YEAR:2020)	Energy Efficient Real time Outdoor Air Quality Monitoring System	Abderrazak Abdaoui, Sabbir H.M. Ahmad, Hasan Tariq, Farid Touati, Adel Ben Mnaouer,Al-Hitmi	This paper presents an OAQM system enabling measurement of CO2, CO, Cl2,ambient temperature,and relative humidity. In this work, the gateway processes the collected air quality data and transmits the useful data to end-users through a web-server.
2.	IEEE PAPER 2 (YEAR:2020)	IoT Personal Air Quality Monitor	Sean Mc Grath, Colin Flanagan, Liaoyuan Zeng, Conor O'Leary	The data is displayed in an interactive, intuitive manner accessible on mobile, tablet and desktop. PM2.5, O3, CO and NO2 are the gases detected
3.	IEEE PAPER 3 (YEAR:2020)	Outdoor Air Quality Monitor Using MQTT Protocol on Smart Campus Network	Muladi Muladi, Siti Sendari, Triyanna Widiyaningtya	Air quality monitoring system using inexpensive devices can work well by using MQTT algorithm. Transfer data from the sensor node to the broker and from the broker to the web server on the internet using a wireless computer network are well performed and time accurately.

10.Proposed Work:

a) Planning: Main objective of this project is to monitor hazardous gas present in the environment in the area of Taloja which is an industrial area. Oour device will monitor the gas present in the environment and it will monitor whether the level of gas breachs the threshold value or not if it does then our system will neutralize the gas and during the process of neutralizing we will make use of the byproduct which is formed. All the amount of presence of gas will be displayed on our portal.

b) Methodology Tools:

1.Our device will be an IOT based product so the all functional units are connected in a network.
2.Different gas sensors ,LCD screen and also ESP8266 WiFi module are interfaced with the Arduino Uno board.Sensors will catch the data about gases and the gudget will put away the information in cloud.
3.Using the ESP32, the data obtained from gas sensors will be transferred to the cloud in real time. The data will then be available on the device.
4.We've linked the system with a mechanism where the hazardous gas is drawn in and a chemical reaction is carried out on it.
5.The obtained byproducts will then be efficiently employed elsewhere.

c) Facilities Available Requirement: Arduino IDE, thingspeak.com

d) REFERENCES:

1)Abderrazak Abdaoui, Sabbir H.M. Ahmad, Hasan Tariq "College of Engineering, Qatar University, Doha, Qatar PoBox 2713", 2020
2)Sean Mc Grath, Colin Flanagan, Liaoyuan Zeng, Conor O'Leary "Department of Electronic and Computer Engineering"
3)Muladi Muladi, Siti Sendari, Triyanna Widiyaningtya, "Dept. of Electrical Engineering Universitas Negeri Malang, Indonesia."

11.Approximate Expenditure : Rs.6000-Rs.7000 /-

Place: Navi Mumbai
Date: 1st October 2021