Smart Device for Rectifying Air Quality and Respiratory Threats

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Abstract— The major Agenda of smart device for rectifying air quality and respiratory disorder ALERTER using IOT is that the pollution in essential Environment is a major issue now a days. It is being a must to monitor air quality for better and excellent future and well being of all, these is recommend for an air quality monitoring frame work that let us to check and display present air condition in an area or within a fixed boundary and provides an alarm to the end users relating to Asthmas, Nausea, CODP, Respiratory Acidosis etc., with the aim that they can stay away from the zone of respiratory disorders. Frame work uses air sensors to identify closeness of harmful gases observable all around and always convey this info, the sensors being interfaced with Arduino which makes this info and convey it through the app, this makes experts to check air contamination in different places and prevent it. Experts can keep with the object that they can take precautions to manage the issue.

Keywords--- Arduino, IOT, Blynk, Gas Sensors a track of schools, hospitals and other places which demand safety —

I. INTRODUCTION

Due to unscientific industrialization the unwanted and harmful air gets mixed with environment leading to air contamination these unwanted and harmful airs is known as air toxins. Here the observation of air quality is over web server using web they are triggered with an alert when the air quality goes down and alarms the user i.e. when an adequate measure of unsafe gas is found such as smoke, methane gas, dust etc, o avoid the amount of contamination. Using this IOT venture the contamination level can be screened on your Smartphone from anyplace. The ready notification or mail will be sent to the client from this framework anyplace when contamination level goes past certain level.

This notification or mail is sent from the module to any area inside a range to the app present in Smartphone. It also alerts us about the related respiratory disorders whenever the air quality goes beyond the threshold.

II. RELATED WORK

Now a day's air pollution is critical issue that needs to be addressed and monitored for a superior future and sound living for all. Due to the contamination the other living forms other than humans such as creatures are also harmed. So the purpose is to build a robust system to measure air pollution and help to reduce it and provide a healthy environment.

III. EXISTING SYSTEM

Diverse strategies and techniques are utilized to monitor the air quality in the specific region influencing the earth to shrewder. Namely IOT based air pollution monitoring system [1]. This focus on the observation of air quality over a web server by triggering an alert when the air goes down a specific level, which contains CO2, smoke, Liquor etc.,

Air and sound pollution monitoring system using IOT [2]. The principle of this work is to observe the air and sound contamination which can be gotten do with the assistance of Wi-Fi module and to examine the contamination level. Different sensors are used to get the info and display the result on LCD.

IV. PROPOSED SYSTEM

Here the air quality is screened utilizing web which triggers the alert when the air is found to be contaminated and goes down a specific level. The air quality is measured in PPM units at regular intervals of time and displayed in the LCD and as well as using "blynk" server.

V. REQUIREMENTS

Hardware Requirements
Arduino UNO, Wi-Fi module ESP8266
Gas sensors: MQ135, MQ6, MQ2, MQ3, MQ7
Software Requirements

Arduino IDE, Embedded C Language

VI. **WORKING MECHANISM**

The sensors give us the required data from the atmosphere. The sensors such as MQ135, MQ6 etc, are used to determine the level of contamination and what kind of gas is mixed. Data is in the form of analog signals which are converted to equivalent digital form. They are connected to the microcontroller using MAX 232. The interaction with microcontroller is done by Wi-Fi module using transmitter and receiver ports.
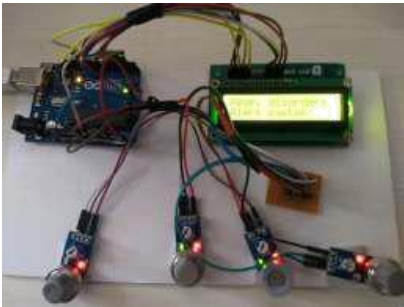

Fig1. Working module

VII. RESULTS AND DISCUSSION

Testing and output

1. Make sure that your mobile is connected to Wi-Fi and download the blynk app develop a new blynk account in your app. The account should be different from the account used for blynk forums. We have to be aware of it. An account is compulsory to save projects and to access them from any remote location.

2. After login, create a new project select the hardware components you are using, here it is Arduino UNO which is being used.

3. Authorization is a special identifier that makes a connection between the component and the smart phone the authorized token will be sent to your email, use this token in the project file. Download the blynk library and link it to Arduino IDE, then compile it and upload the file to Arduino board.

4. Tap anywhere to enter into the widget box, and all the available widget will be shown here.

5. Run the projects after done with all the settings then press play, this will switch the display from the editing mode to play mode, there the hardware interaction take place.

6. The result are visible in the blynk app and a notification and email will be sent to smart phone, shows pollution quantity in air is high, so as to take the safety precautions.
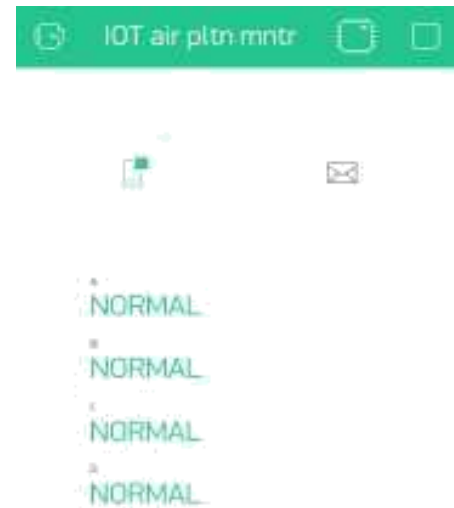

Fig2. Blynk application when air contamination is normal

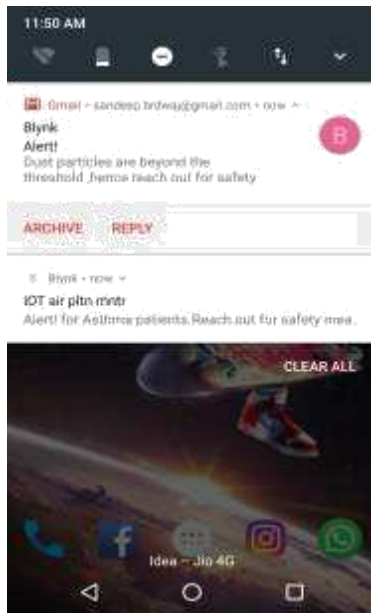Fig3. Alert display in Blynk application when air contamination is above the threshold

Fig4. Email and notification alerts

VII. CONCLUSION

The designed proposed system shows the simulation output of sensing the butane gas, smoke, LPG gas. The alert sends notification to smart phone and result is also displayed through LCD when the level of air goes down.

Blynk server is used to view in internet when output is pushed to cloud it is robust and user friendly system check the quality of air in environment. The results are accurate and hence can be used for safety purpose of patients who are prone to respiratory disorders
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VIII.ACKNOWLEDGEMENT

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