A

Dissertation Report On

IOT BASED HYGIENE MONITORING SYSTEM USING ARDUINO

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ABSRACT

Our project is IoT based hygiene monitoring system using arduino.This type of project is used in many industries for checking the air pollution level in their environment.The limitation is that their device only for industrial purpose.Our project idea is to use our device at any place to check the hygiene of that place.It tells us about the harmful gases level present in the surrounding air,humidity &,temperature. It will trigger a alarm when the air quality goes down beyond a certain level, means when there are sufficient amount of harmful gases are present in the air like CO2, smoke, alcohol, benzene and NH3. It will show the air quality in PPM on the LCD and a so that we can monitor it very easily.weuseMQ135sensor,ardu inouno,pote-ntiometer,wifi module.

INTRODUCTION

First of all we will connect the **GSM MODULE 800A**. It runs on 3.3V and if you will give it 5V from the Arduino then it won't work properly and it may get damage. Connect the VCC and the CH_PD to the 3.3V pin of Arduino. The RX pin of it works on 3.3V and it will not communicate with the Arduino when we will connect it directly to the Arduino. So, we will have to make a voltage divider for it which will convert the 5V into 3.3V. This can be done by connecting three resistors in series like we did in the circuit. Connect the TX pin of the this module to the pin 10 of the Arduino and the RX pin of the module to the pin 9 of Arduino through the resistors.

GSMMODULE800A module gives our projects **access to messages**. It is a very cheap device and make your projects very powerful. It can communicate with any microcontroller and it is the most leading devices in the IOT platform.

Then we will connect the **MQ135 sensor with the Arduino**. Connect the VCC and the ground pin of the sensor to

the 5V and ground of the Arduino and the Analog pin of sensor to the A0 of the Arduino.

Connect a LED to the pin 8 of the Arduino which will start to light when the condition becomes true.

HYGIENE MONITORING SYSTEM
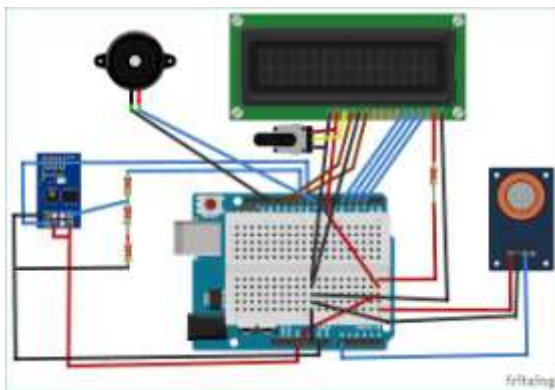
We use the following sensors in our project:-

MQ135 SENSOR-It is used for tracking air pollution level in air.

DHT11-TEMPERATURE& HUMIDITY SENSOR:- it shows the temperature & humidity of place where we want to check the hyginine.

GSM MODULE:-It sent the recorded data of pollution level on smartphone by message.

ARDUINO UNO:-We are using Arduino uno board for making our project of hygiene monitoring system.we also

attached PCB board with it by using soldering.We attached all the respective sensors as explain earlier to it.A led screen also connected on which data will be shown which get recorded by the sensors.All the programs for sensors are stored on Arduino uno storage *device.*

WORKING PRINCIPLE
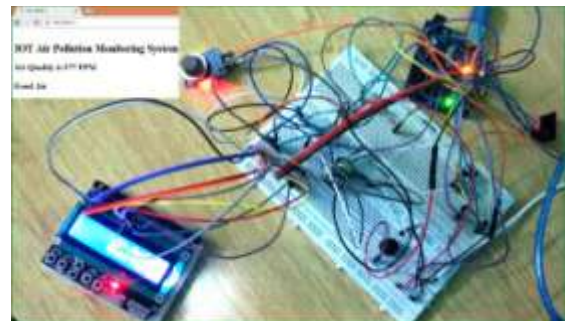
The MQ135 sensor can sense NH3, NOx, alcohol, Benzene, smoke, CO2 and some other gases, so it is perfect gas sensor for our **Air Quality Monitoring Project**. When we will connect it to Arduino then it will sense the gases, and we will get the Pollution level in PPM (parts per million). MQ135 gas sensor gives the output in form of voltage levels and we need to convert it into PPM. So for converting the output in PPM, here we have used a library for MQ135 sensor, it is

explained in detail in "Code Explanation" section below.

Sensor was giving us value of 90 when there was no gas near it and the safe level of air quality is 350 PPM and it should not exceed 1000 PPM. When it exceeds the limit of 1000 PPM, then it starts cause Headaches, sleepiness and stagnant, stale, stuffy air and if exceeds beyond 2000 PPM then it can cause increased heart rate and many other diseases.

When the value will be less than 1000 PPM, then the LCD and webpage will display "Fresh Air". Whenever the value will increase 1000 PPM, then the buzzer will start beeping and the LCD and webpage will display "Poor Air, Open Windows". If it will increase 2000 then the buzzer will keep beeping and the LCD and webpage will display "Danger! Move to fresh Air".

This is the toy model of our project i.e hygiene monitoring system.It shows arduino uno,GSM module & respective sensors as describe earlier.It will give us the record of hygiene of a particular detected by the sensor.All the wires are properly connected with arduino uno.All the programs are present inside the arduino for all functioning of the project.Our motive of project is to detect the hygiene of the place so people get aware of their environment in which they live because bad hygiene causes many disease like ashthama,bronchitis etc.

EXPERIMENTAL PROTOTYPE

ACKNOWLEDGEMENT

The completion of any project requires sincere effort, hard work and blessings of many people, who directly or indirectly contribute in making it a success. My report is no exception and I would like to show special gratitude to all of them.First and foremost, it is a matter of great pleasure and privilege for me to thank my **Prof. Dr. DEBANJAN DAS** for his much needed, encouragement and valuable guidance.I take this opportunity to mention my sincere thanks to all my teachers, who educated me, helped me learn, and helped me in building self-confidence which was most necessary essence in life.Finally, I wish to thank all those who motivated me directly or indirectly during the completion of this work.

CONCLUSION

At last we conclude that we enjoy a lot during completion of project.It is very awesome experience for as it is fully technical.We able to make a project which can detect the air pollution level of particular surrounding and show the data by which we able to know its hygiene.

REFERENCE

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