



JAI SHRIRAM ENGINEERING COLLEGE

TIRUPPUR – 638 660

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

Recognized by UGC & Accredited by NAAC and NBA (CSE and ECE)



**DEPARTMENT OF
ELECTRONICS AND COMMUNICATION ENGINEERING**

IBM - Naan Mudhalvan

Internet of Things

Group 3

Phase 4 – Development Part 2

TITLE: AIR QUALITY MONITORING SYSTEM

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YEAR : III

Introduction:

At present, the humans are unaware of the environmental protection and harmness that caused due to the development in the technology. Mainly, the emission that are caused by the over usage of the vehicles and the gases released from the industrial sector which heavily affects the entire atmosphere including the human's health. Hence, the main focus of this project is to provide the awareness and affection level of the harmful gases which is very dangerous to human life.

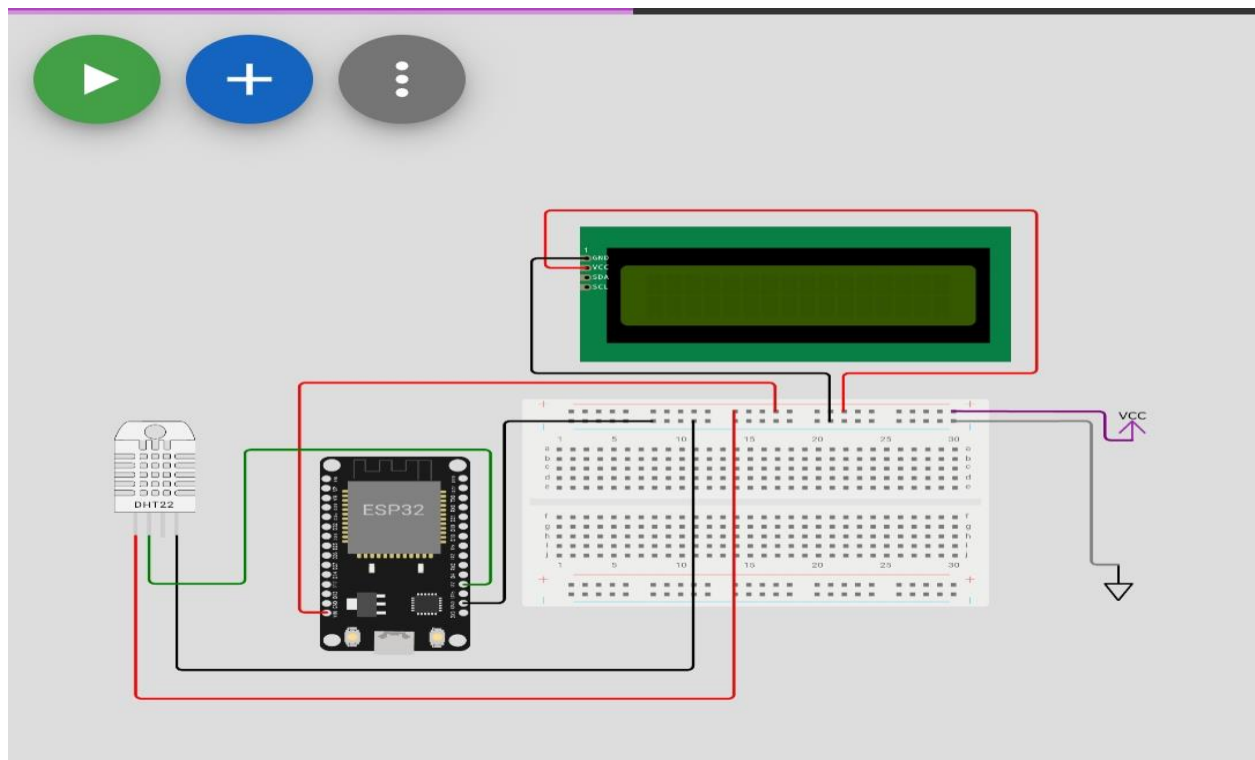
Existing System:

The Present Mobile air quality monitoring only provides the data on gas level, temperature and humidity of the surroundings which makes the people to be unaware of harmful gases that endangers their life. This System is used for monitoring and controlling that are extracted from the sensors.

Development Idea:

Our aim is to develop a improved version of the current existing system by indicating danger levels of the harmful gases in the surroundings around the user and the user can findout the level by using the Blynk IoT where the danger levels are monitored from the extracted data that are collected from the sensor.

```
wokwi.com/projects/379540681735808001
WOKWI
diagram.json libraries.txt Library Manager
1 BLYNK_TEMPLATE_ID = &quot;TMPLgwKs5gggsnFXp&quot;;
2 BLYNK_DEVICE_NAME = &quot;Air Quality Monitoring&quot;;
3 BLYNK_AUTH_TOKEN =
4 &quot;k03gT6nJ0sd5fsffesrJV_555XEAdgdsdghhgPZvXEwSKDfj&quot;;
5 ot;
6 BLYNK_PRINT = Serial
7 import ESP8266WiFi
8 import BlynkSimpleEsp8266
9 import DHT
10 import LiquidCrystal_I2C
11 lcd = LiquidCrystal_I2C(0x27, 16, 2)
12 degree_symbol = [
13 0b00111,
14 0b00101,
15 0b00111,
16 0b00000,
17 0b00000,
18 0b00000,
19 0b00000,
20 0b00000
21 ]
22 ]
23 auth = BLYNK_AUTH_TOKEN
24 ssid = &quot;&quot;; # type your wifi name
25 pass = &quot;&quot;; # type your wifi password
26 timer = BlynkTimer()
27 gas = A0
28 sensorThreshold = 100
29 DHTPIN = 2 # Connect Out pin to D2 in NODE MCU
30 DHTTYPE = DHT11
31 dht = DHT(DHTPIN, DHTTYPE)
```



Simulation

Program:

```
BLYNK_TEMPLATE_ID = &quot;TMPLgwKssgggsnFXp&quot;
BLYNK_DEVICE_NAME = &quot;Air Quality Monitoring&quot;
BLYNK_AUTH_TOKEN =
&quot;k03gT6nJosdsfsffesrJV_S5SXEdgdsdghhgPZvXEwSKDfj&qu
ot;

BLYNK_PRINT = Serial

import ESP8266WiFi
import BlynkSimpleEsp8266
import DHT
import LiquidCrystal_I2C

lcd = LiquidCrystal_I2C(0x27, 16, 2)

degree_symbol = [
0b00111,
0b00101,
0b00111,
0b00000,
0b00000,
0b00000,
0b00000,
0b00000
```

```
]
auth = BLYNK_AUTH_TOKEN
ssid = "" # type your wifi name
pass = "" # type your wifi password
timer = BlynkTimer()
gas = A0
sensorThreshold = 100
DHTPIN = 2 # Connect Out pin to D2 in NODE MCU
DHTTYPE = DHT11
dht = DHT(DHTPIN, DHTTYPE)
def sendSensor():
h = dht.readHumidity()
t = dht.readTemperature() # or dht.readTemperature(true) for Fahrenheit
if (isnan(h) or isnan(t)):
Serial.println("Failed to read from DHT sensor!\");
return
analogSensor = analogRead(gas)
Blynk.virtualWrite(V2, analogSensor)
Serial.print("Gas Value: ");
Serial.println(analogSensor)
# You can send any value at any time.
```

Please don't send more than 10 values per second.

Blynk.virtualWrite(V0, t)

Blynk.virtualWrite(V1, h)

print("Temperature : ", t)

print("Humidity : ", h)

def setup():

Serial.begin(115200)

Blynk.begin(auth, ssid, pass)

dht.begin()

timer.setInterval(30000, sendSensor)

lcd.begin()

lcd.setCursor(3,0)

lcd.print("Air Quality")

lcd.setCursor(3,1)

lcd.print("Monitoring")

delay(2000)

lcd.clear()

def loop():

Blynk.run()

timer.run()

```
h = dht.readHumidity()
t = dht.readTemperature()
gasValue = analogRead(gas)
lcd.setCursor(0,0)
lcd.print("&quot;Temperature &quot;")
lcd.setCursor(0,1)
lcd.print(t)
lcd.setCursor(6,1)
lcd.write(1)
lcd.createChar(1, degree_symbol)
lcd.setCursor(7,1)
lcd.print("&quot;C&quot;")
delay(4000)
lcd.clear()
lcd.setCursor(0, 0)
lcd.print("&quot;Humidity &quot;")
lcd.print(h)
lcd.print("&quot;%&quot;")
delay(4000)
lcd.clear()
if gasValue &lt; 600:
```

```
lcd.setCursor(0,0)
lcd.print(&quot;Gas Value: &quot;);
lcd.print(gasValue)
lcd.setCursor(0, 1)
lcd.print(&quot;Fresh Air&quot;);
print(&quot;Fresh Air&quot;);
delay(4000)
lcd.clear()
elif gasValue > 600:
cpp
lcd.setCursor(0,0)
lcd.print(gasValue)
lcd.setCursor(0, 1)
lcd.print(&quot;Bad Air&quot;);
print(&quot;Bad Air&quot;);
time.sleep(4)
lcd.clear()
if gasValue > 600:
Blynk.logEvent(&quot;pollution_alert&quot;, &quot;Bad Air&quot;);
```