

```
import os
import time
import serial # import serial package
import sys # import system package
import urllib3
import urllib.request
import yagmail
import pytt3x3

arduino = serial.Serial('COM3', 9600, timeout=.1)
time.sleep(1)
count = 0
```

```
def mail_send(data):
    print("Sending mail...")
    mail = 'sampletestmail.786@gmail.com';
    password = 'vnzymrxlzmduyurch'
    # list of email_id to send the mail
    li = ["gunayashik04@gmail.com"]

    body = "Abnormal Detected...!"

    yag = yagmail.SMTP(mail, password)

    for dest in li:
        yag.send(
            to=dest,
            subject="Alert...! Abnormal Detected..",
```

```
        contents=data,  
    )  
    print("Mail sent to all...!")
```

```
while True:
```

```
    data = arduino.readline()[:-2] # the last bit gets rid of the new-line chars
```

```
    if data:
```

```
        data = data.decode('utf-8')
```

```
        data_v = str(data)
```

```
        data_v = data_v.split(' ')
```

```
        print(data_v)
```

```
        data1 = data_v[0]
```

```
        data2 = data_v[1]
```

```
        data3 = data_v[2]
```

```
        data4 = data_v[4]
```

```
        data5 = data_v[3]
```

```
        data1i = int(data_v[0])
```

```
        data2i = int(data_v[1])
```

```
        data3i = float(data_v[2])
```

```
        data4i = int(data_v[4])
```

```
        data5i = int(data_v[3])
```

```
        print('Battery Temp.: ', data1)
```

```
        print('Engine Temp.: ', data2)
```

```
print('Battery Volt.: ', data3)

print('Vibration   : ', data4)

print('Fire       : ', data5)
```

```
data = "<h1>EV Vehicle and Battery Fault Management System Details...!</h1> <h2> Bat. Temp : " +
data1 + " Engine Temp : " + data2 + " Battery Voltage : : " + data3 + " Vibration : " + data4 + " Fire : " +
data5 + " - Abnormal </h2>"
```

```
link = 'https://api.thingspeak.com/update?api_key=1FG78915ZT9PF2MC&field1=' + data1 +
'&field2=' + data2 + '&field3=' + data3 + '&field4=' + data4 + '&field5=' + data5
```

```
urllib.request.urlopen(link)
```

```
if data1i >= 38:
```

```
print("Battery Temperature High - Abnormal")

engine = pyttsx3.init()

engine.say("Hi... Battery Temperature High - Abnormal - Take Care...!")

engine.runAndWait()
```

```
if count == 0:
```

```
    mail_send(data)

    count = count + 1
```

```
elif data2i >= 38:
```

```
print("Engine Temperature High - Abnormal")

engine = pyttsx3.init()

engine.say("Hi... Engine Temperature High - Abnormal - Take Care...!")

engine.runAndWait()
```

```
if count == 0:
    mail_send(data)
    count = count + 1

elif data5i == 0:

    print("Fire Detected - Abnormal")
    engine = pyttsx3.init()
    engine.say("Hi... Fire Detected - Abnormal - Take Care...!")
    engine.runAndWait()

if count == 0:
    mail_send(data)
    count = count + 1

else:

    print("NORMAL")
    count = 0

print(' ')
```