

Titlul proiectului: **Remote gas detector**

Echipa:

Laiu Stefanel -1305A,

Bianca-Miruna Ciobotaru - 1305A

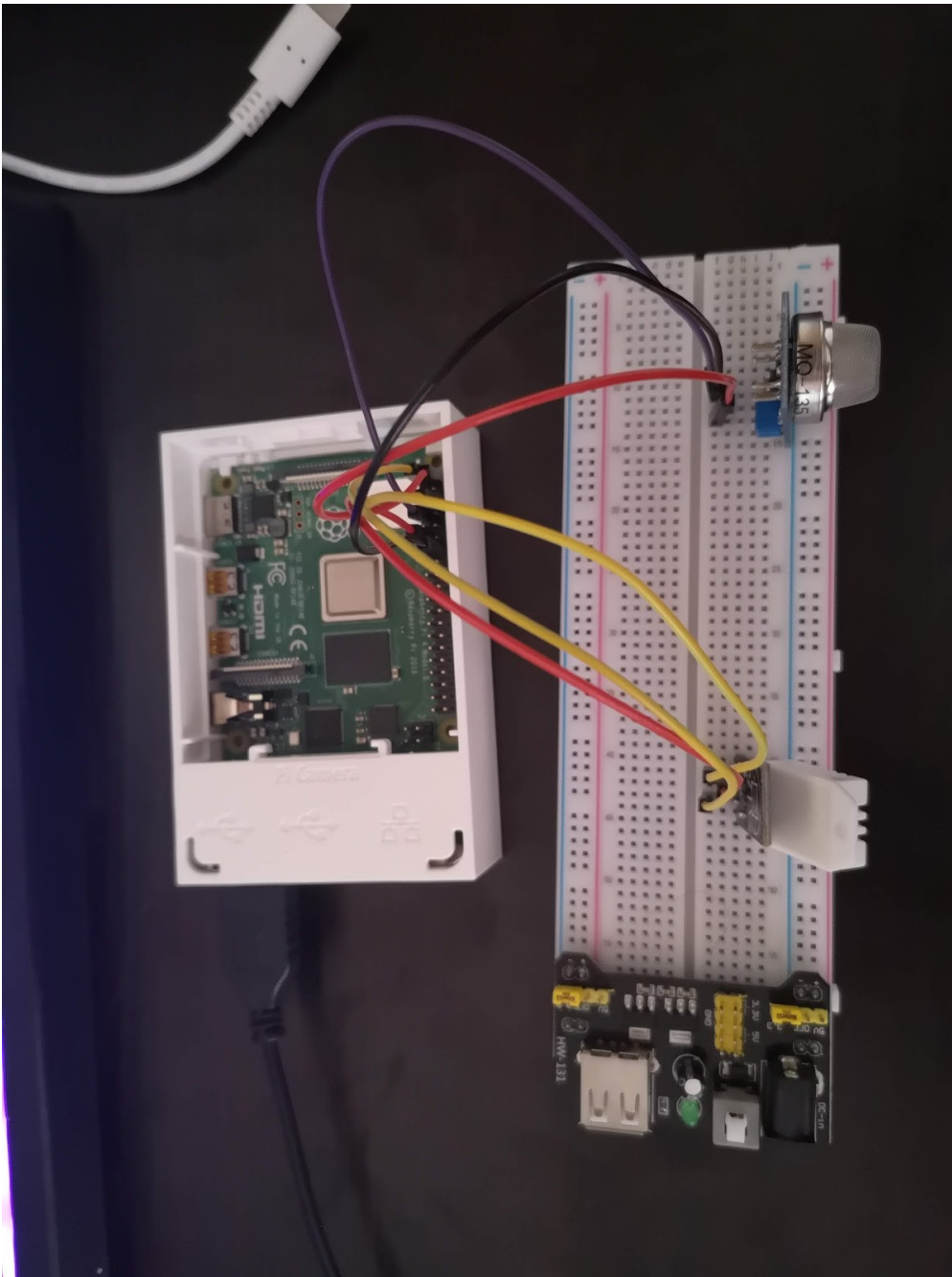
Sandra-Elena Busuioc - 1305A

Name: Remote gas detector

Elevator Pitch:

If you are concerned with your family's safety especially when you are away from home or maybe just unsure of the gas installation in your building. This project helps you get notified anytime if there is a gas leak in your house and the temperature measured at the detection time.

Cover Image:



Story:

The story of this project is to help the average person with the simplest and minimal effort to improve his and his family's safety. The project sought to be functional and informativ with minimum spending and knowledge, so anyone can benefit from it.

Components & Applications

Hardware:

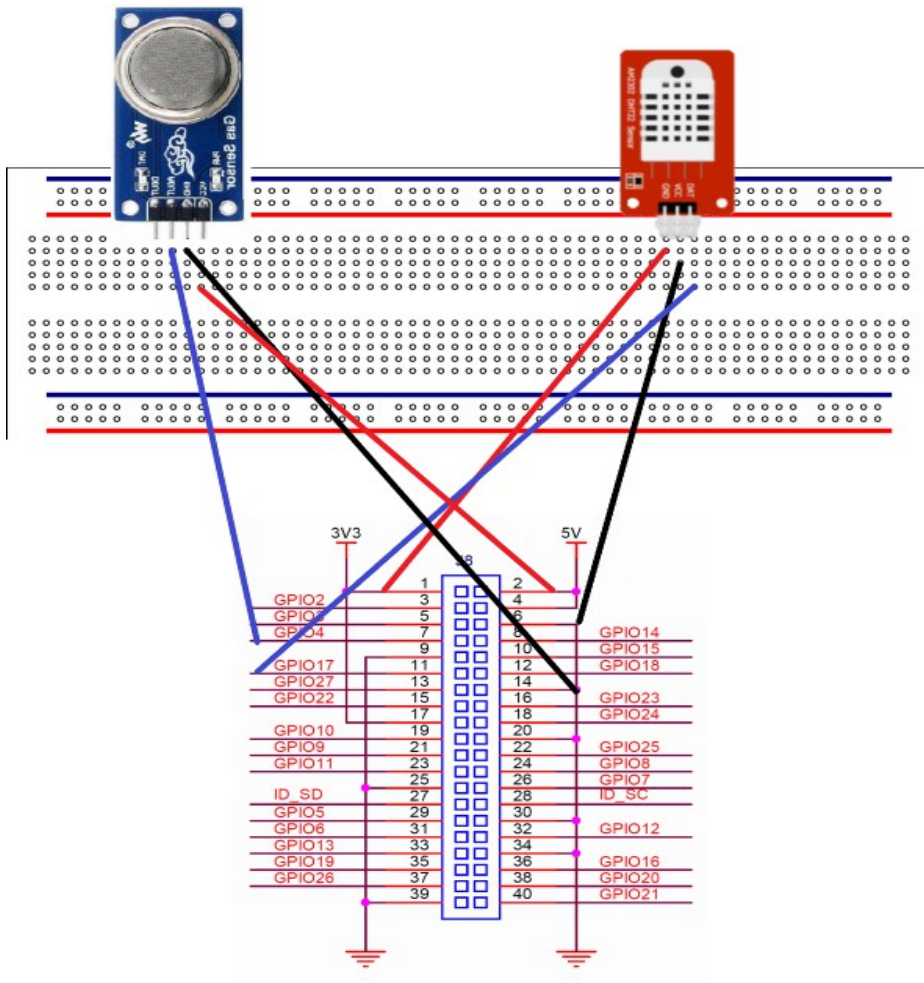
- Raspberry Pi + Peripherals
- MQ-135 gas sensor
- DHT22 Temperature and Humidity sensor

- Breadboard
- 6 (Six) Male-Female Jumper-cables

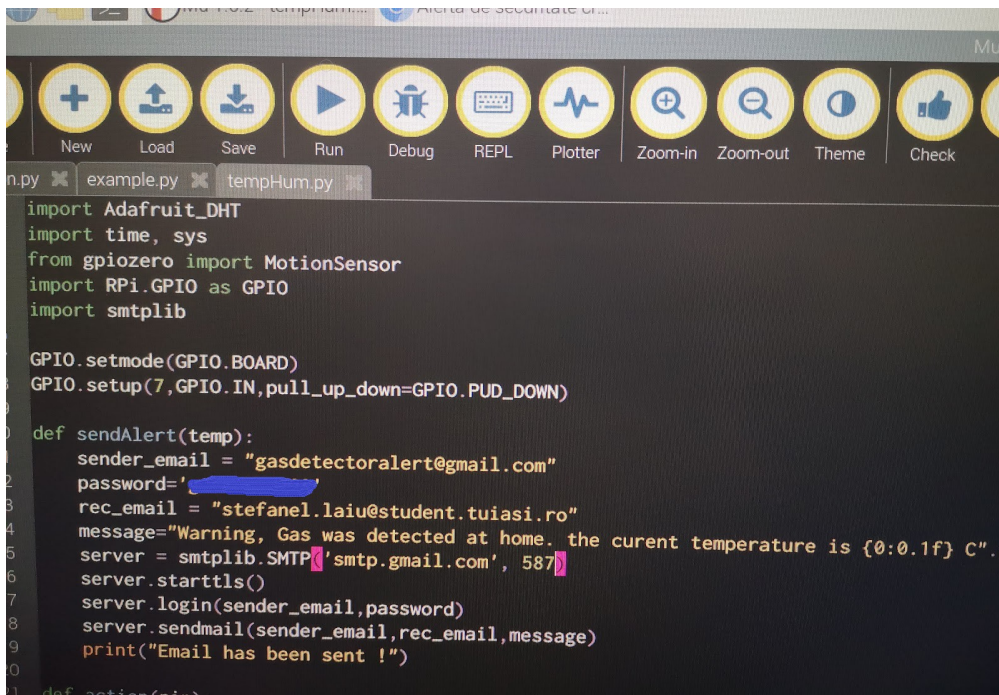
Software:

- **Raspberry Pi OS** (previously called Raspbian)
- Python programming language

Schematic:



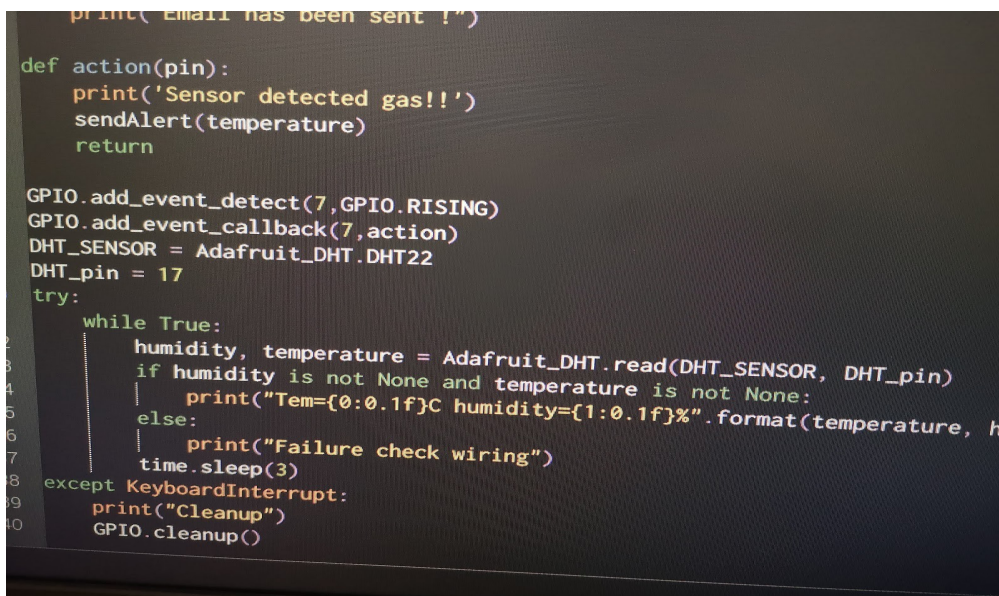
Code:



```
import Adafruit_DHT
import time, sys
from gpiozero import MotionSensor
import RPi.GPIO as GPIO
import smtplib

GPIO.setmode(GPIO.BOARD)
GPIO.setup(7, GPIO.IN, pull_up_down=GPIO.PUD_DOWN)

def sendAlert(temp):
    sender_email = "gasdetectoralert@gmail.com"
    password = " "
    rec_email = "stefanel.laiu@student.tuiasi.ro"
    message = "Warning, Gas was detected at home. the current temperature is {0:0.1f} C".format(temp)
    server = smtplib.SMTP('smtp.gmail.com', 587)
    server.starttls()
    server.login(sender_email, password)
    server.sendmail(sender_email, rec_email, message)
    print("Email has been sent !")
```



```
print("Email has been sent !")

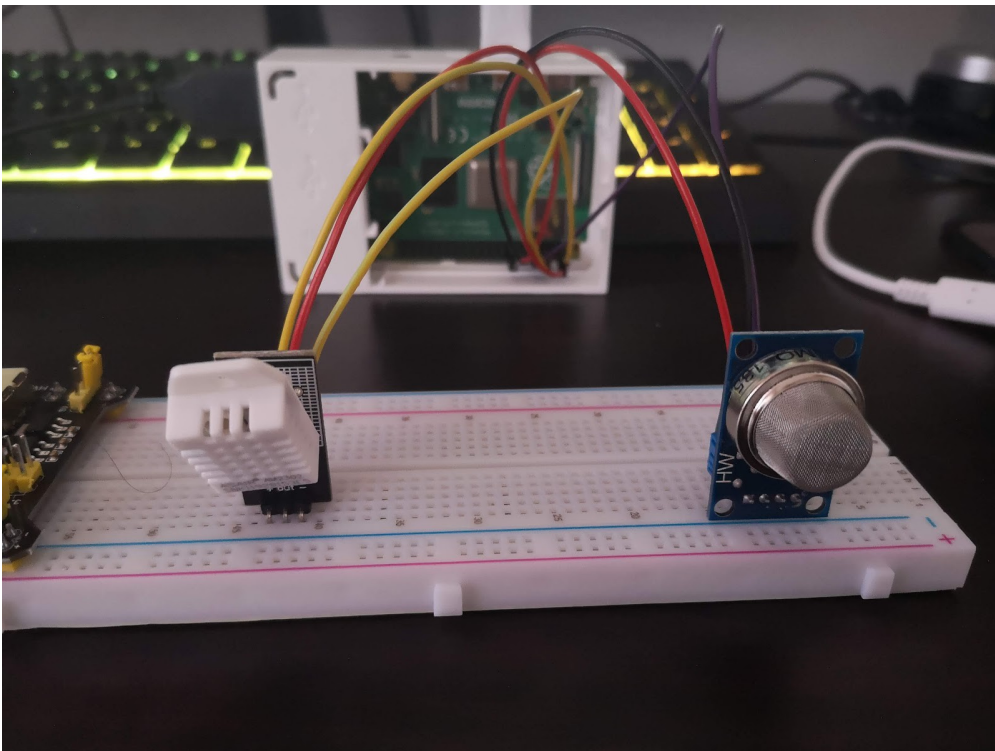
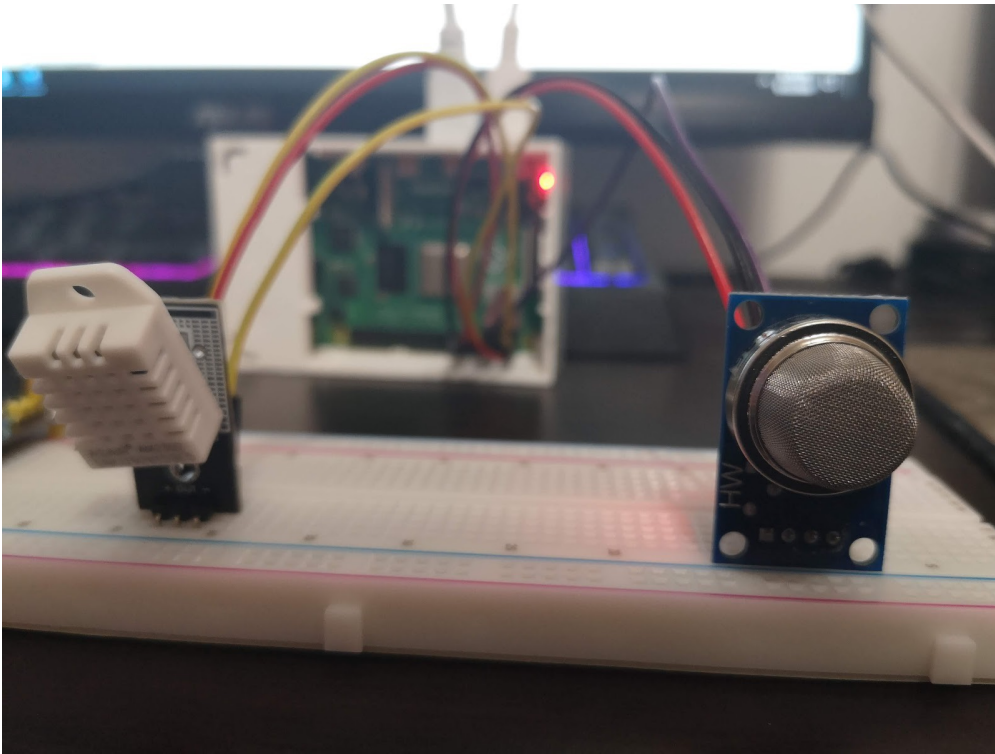
def action(pin):
    print('Sensor detected gas!!')
    sendAlert(temperature)
    return

GPIO.add_event_detect(7, GPIO.RISING)
GPIO.add_event_callback(7, action)
DHT_SENSOR = Adafruit_DHT.DHT22
DHT_pin = 17
try:
    while True:
        humidity, temperature = Adafruit_DHT.read(DHT_SENSOR, DHT_pin)
        if humidity is not None and temperature is not None:
            print("Tem={0:0.1f}C humidity={1:0.1f}%".format(temperature, humidity))
        else:
            print("Failure check wiring")
            time.sleep(3)
except KeyboardInterrupt:
    print("Cleanup")
    GPIO.cleanup()
```

Steps:

1. Assemble the DHT22 sensor with a small example code for testing and calibration.
2. Assemble the MQ-135 sensor according to the schematic and improve the code by reading the signals from both sensors
3. Complete the functionality by configuring the email service and composing the warning message.

Pictures and Demo:



[Functional Demo](#)