

Annexe

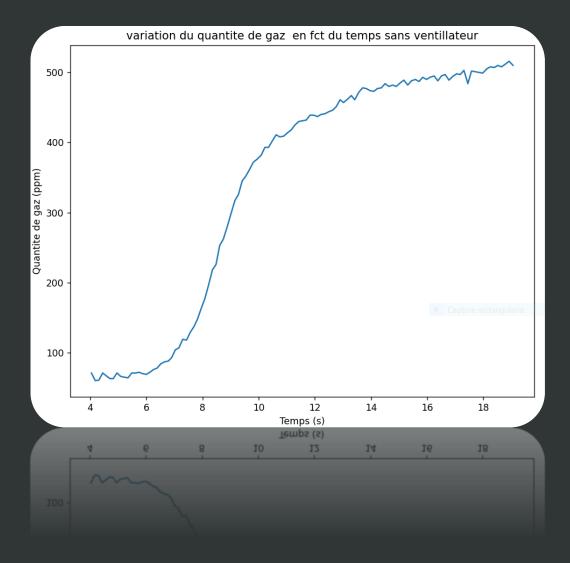
Collection des images & video du Smart Detector



```
valeurs temps = ['18:29:39.06', '18:29:38.92', '18:29:38.79', '18:29:38.65',
   '18:29:38.52',
       '18:29:38.39', '18:29:38.25', '18:29:38.12', '18:29:37.98', '18:29:37.85',
       '18:29:37.05', '18:29:36.90', '18:29:36.78', '18:29:36.64', '18:29:36.51',
       '18:29:36.38', '18:29:36.25', '18:29:36.10', '18:29:35.98', '18:29:35.84',
       '18:29:35.71', '18:29:35.58', '18:29:35.44', '18:29:35.31', '18:29:35.17',
       '18:29:35.04', '18:29:34.90', '18:29:34.77', '18:29:34.64', '18:29:34.50',
       '18:29:34.37', '18:29:34.23', '18:29:34.10', '18:29:33.97', '18:29:33.83',
       '18:29:33.70', '18:29:33.57', '18:29:33.42', '18:29:33.30', '18:29:33.17',
       '18:29:33.02', '18:29:32.90', '18:29:32.76', '18:29:32.63', '18:29:32.50',
       '18:29:32.36', '18:29:32.22', '18:29:32.09', '18:29:31.96', '18:29:31.83',
       '18:29:31.69', '18:29:31.56', '18:29:31.43', '18:29:31.29', '18:29:31.16',
       '18:29:31.03', '18:29:30.89', '18:29:30.75', '18:29:30.62', '18:29:30.48',
       '18:29:30.35', '18:29:30.22', '18:29:30.09', '18:29:29.94', '18:29:29.81',
       '18:29:29.68', '18:29:29.54', '18:29:29.41', '18:29:29.28', '18:29:29.15',
       '18:29:29.01', '18:29:28.88', '18:29:28.74', '18:29:28.61', '18:29:28.48',
       '18:29:28.35', '18:29:28.21', '18:29:28.08', '18:29:27.95', '18:29:27.82',
       '18:29:27.69', '18:29:27.56', '18:29:27.43', '18:29:27.29', '18:29:27.16',
       '18:29:27.03', '18:29:26.90', '18:29:26.78', '18:29:26.65', '18:29:26.51',
       '18:29:25.74', '18:29:25.61', '18:29:25.48', '18:29:25.34', '18:29:25.22',
       '18:29:24.44', '18:29:24.31', '18:29:24.18', '18:29:24.04']
27 valeurs = [
       510, 516,512, 508, 510, 507, 508, 505, 499, 500, 501, 502, 484, 503, 497, 498,
       494, 489, 497, 495, 488, 495, 493, 490, 493, 487, 490, 488, 482, 489, 485, 480,
       482, 480, 484, 478, 477, 473, 474, 477, 478, 472, 461, 467, 462, 457, 461, 451,
       446, 444, 441, 440, 437, 439, 439, 432, 431, 430, 425, 418, 414, 409, 408, 411,
       402, 393, 393, 382, 376, 372, 362, 352, 345, 326, 317, 298, 280, 262, 253, 226,
       218, 196, 177, 163, 148, 137, 129, 118, 119, 107, 104, 93, 88, 87, 84, 78, 76,
       72, 69, 70, 72, 71, 71, 64, 65, 66, 71, 63, 63, 67, 71, 61, 60, 71]
36 valeurs temps secondes = []
37 for valeur temps in valeurs temps:
       temps = datetime.datetime.strptime(valeur_temps, '%H:%M:%S.%f')
       temps secondes =temps.second + temps.microsecond / 1e6 -20
       valeurs temps secondes.append(temps secondes)
42 valeurs_temps_secondes_inverse= valeurs_temps_secondes[::-1] # Inversion de la
44 valeurs inverse = valeurs[::-1] # Inversion de la liste temps
46 plt.plot(valeurs_temps_secondes_inverse, valeurs_inverse,)
47 plt.xlabel('Temps (s)')
48 plt.ylabel('Quantite de gaz (ppm)')
49 plt.title('variation du quantite de gaz en fct du temps avec ventillateur')
50 plt.show()
```

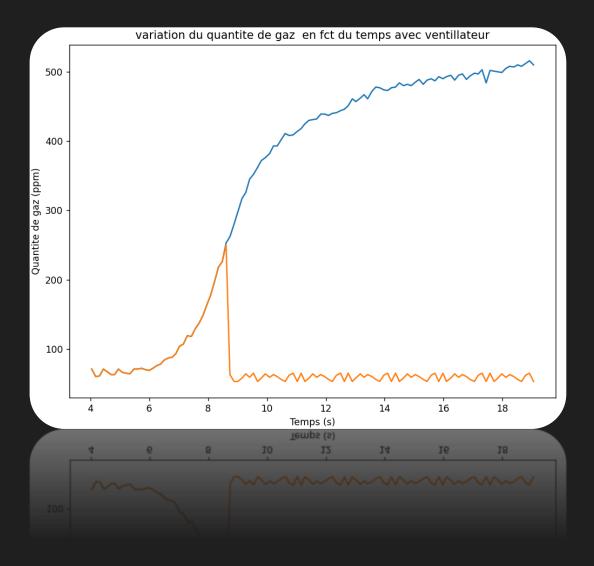
import datetime

import matplotlib.pyplot as plt

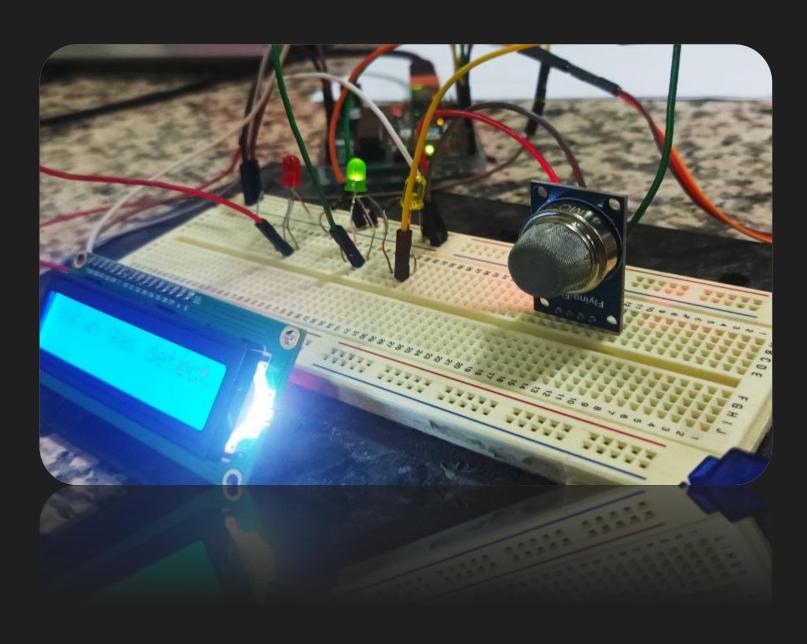


```
import matplotlib.pyplot as plt
    valeurs_temps = [1'18:29:39.06', '18:29:38.92', '18:29:38.79', '18:29:38.65', '18:29:38.52',
         '18:29:38.39<sup>-</sup>, '18:29:38.25', '18:29:38.12', '18:29:37.98', '18:29:37.85',
         '18:29:37.72', '18:29:37.58', '18:29:37.45', '18:29:37.31', '18:29:37.18',
         '18:29:37.05', '18:29:36.90', '18:29:36.78', '18:29:36.64', '18:29:36.51',
         '18:29:36.38', '18:29:36.25', '18:29:36.10', '18:29:35.98', '18:29:35.84',
         '18:29:35.71', '18:29:35.58', '18:29:35.44', '18:29:35.31', '18:29:35.17',
         18:29:35.04', '18:29:34.90', '18:29:34.77', '18:29:34.64', '18:29:34.50',
         '18:29:34.37', '18:29:34.23', '18:29:34.10', '18:29:33.97', '18:29:33.83',
         '18:29:33.70', '18:29:33.57', '18:29:33.42', '18:29:33.30', '18:29:33.17',
12
         '18:29:33.02', '18:29:32.90', '18:29:32.76', '18:29:32.63', '18:29:32.50',
         '18:29:32.36', '18:29:32.22', '18:29:32.09', '18:29:31.96', '18:29:31.83',
         '18:29:31.69', '18:29:31.56', '18:29:31.43', '18:29:31.29', '18:29:31.16',
         '18:29:31.03', '18:29:30.89', '18:29:30.75', '18:29:30.62', '18:29:30.48',
         '18:29:30.35', '18:29:30.22', '18:29:30.09', '18:29:29.94', '18:29:29.81',
         '18:29:29.68', '18:29:29.54', '18:29:29.41', '18:29:29.28', '18:29:29.15',
         '18:29:29.01', '18:29:28.88', '18:29:28.74', '18:29:28.61', '18:29:28.48',
         '18:29:28.35', '18:29:28.21', '18:29:28.08', '18:29:27.95', '18:29:27.82',
         '18:29:27.69', '18:29:27.56', '18:29:27.43', '18:29:27.29', '18:29:27.16',
         '18:29:27.03', '18:29:26.90', '18:29:26.78', '18:29:26.65', '18:29:26.51',
         '18:29:26.38', '18:29:26.26', '18:29:26.12', '18:29:26.00', '18:29:25.87',
         '18:29:25.74', '18:29:25.61', '18:29:25.48', '18:29:25.34', '18:29:25.22',
         '18:29:25.09', '18:29:24.95', '18:29:24.82', '18:29:24.70', '18:29:24.57',
         '18:29:24.44', '18:29:24.31', '18:29:24.18', '18:29:24.04'
    valeurs = [
         510, 516,512, 508, 510, 507, 508, 505, 499, 500, 501, 502, 484, 503, 497, 498,
         494, 489, 497, 495, 488, 495, 493, 490, 493, 487, 490, 488, 482, 489, 485, 480,
         482, 480, 484, 478, 477, 473, 474, 477, 478, 472, 461, 467, 462, 457, 461, 451,
         446, 444, 441, 440, 437, 439, 439, 432, 431, 430, 425, 418, 414, 409, 408, 411,
        402, 393, 393, 382, 376, 372, 362, 352, 345, 326, 317, 298, 280, 262, 253, 226,
        218, 196, 177, 163, 148, 137, 129, 118, 119, 107, 104, 93, 88, 87, 84, 78, 76,
         72, 69, 70, 72, 71, 71, 64, 65, 66, 71, 63, 63, 67, 71, 61, 60, 71]
    valeur = [ 53, 65, 62, 53, 56, 60, 63, 59, 64, 58, 53, 65, 53, 65, 62, 53, 56, 60, 63, 59, 64, 58, 53, 65
         , 53, 65, 62, 53, 56, 60, 63, 59, 64, 58, 53, 65,53, 65, 62, 53, 56, 60, 63, 59, 64, 58, 53, 65,
        53, 65, 62, 53, 56, 60, 63, 59, 64, 58, 53, 65, 53, 65, 62, 53, 56, 60, 63, 59, 64, 58, 53, 65
         .59, 64, 58, 53, 53, 63, 250, 226,
        218, 196, 177, 163, 148, 137, 129, 118, 119, 107, 104, 93, 88, 87, 84, 78, 76,
         72, 69, 70, 72, 71, 71, 64, 65, 66, 71, 63, 63, 67, 71, 61, 60, 71]
    valeurs_temps_secondes = []
    for valeur_temps in valeurs_temps:
        temps = datetime.datetime.strptime(valeur_temps, '%H:%M:%S.%f')
         temps secondes =temps.second + temps.microsecond / 1e6 -20
         valeurs temps secondes.append(temps secondes)
    valeurs_temps_secondes_inverse= valeurs_temps_secondes[::-1] # Inversion de la liste temps
    valeurs inverse = valeurs[::-1] # Inversion de la liste temps
    valeur inverse = valeur[::-1]
    plt.plot(valeurs_temps_secondes_inverse, valeurs_inverse,)
    plt.plot(valeurs temps secondes inverse, valeur inverse)
    plt.xlabel('Temps (s)')
    plt.ylabel('Quantite de gaz (ppm)')
    plt.title('variation du quantite de gaz en fct du temps avec ventillateur')
    plt.show()
```

import datetime

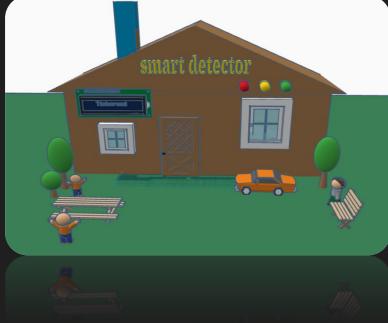


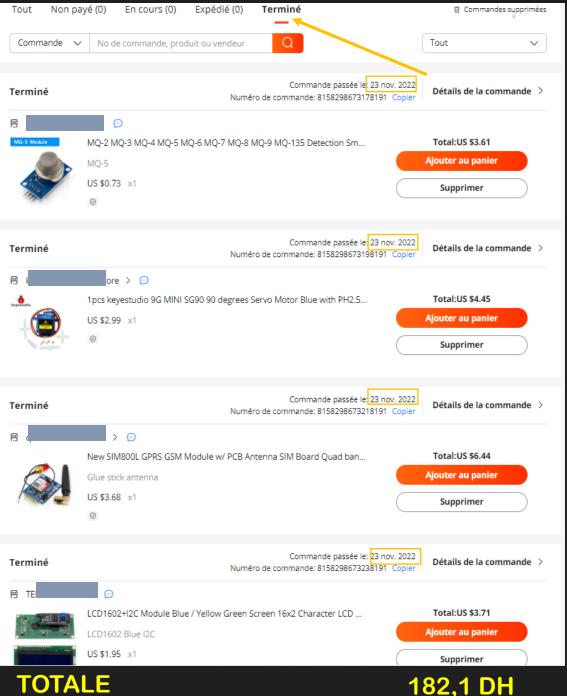
```
4 int redled = 2;
   int greenled = 3;
6 int yellowled = 4;
   int sensor = A0;
8 int sensorThresh = 500;
9 int sensormoyenn = 250;
10 LiquidCrystal_I2C lcd_1(0x27, 16, 2);
12 void setup()
    lcd_1.begin();
     pinMode(redled, OUTPUT);
     pinMode(greenled, OUTPUT);
     pinMode(yellowled, OUTPUT);
     pinMode(sensor, INPUT);
24 void loop()
     int analogValue = analogRead(sensor);
     Serial println(analogValue);
     if (analogValue > sensorThresh)
       lcd_1 clear();
       lcd_1.setCursor(0, 1);
       lcd_1 print(analogValue);
       digitalWrite(redled, HIGH);
       digitalWrite(greenled, LOW);
       digitalWrite(yellowled, LOW);
      if (analogValue > sensormoyenn and analogValue < sensorThresh)</pre>
       lcd_1.clear();
lcd_1.print("l'environnement!!");
       lcd_1.setCursor(0, 1);
       lcd_1 print(analogValue);
       digitalWrite(yellowled, HIGH);
       digitalWrite(greenled, LOW);
       digitalWrite(redled, LOW);
       lcd_1 clear();
       lcd_1 print(analogValue);
       digitalWrite(yellowled, LOW);
       digitalWrite(greenled, HIGH);
       digitalWrite(redled, LOW);
```



```
String number = "+212675105556"; //-> change with your number
                                                                                  // tell servo to go to position in variable 'pos'
                                                                                  // wait 15 ms for servo to reach the position
                                                                                   delay(1); // Wait for 1 millisecond(s)
 pinMode(realed, OUTPUT);
pinMode(greenled, OUTPUT);
pinMode(yellowled, OUTPUT);
                                                                              //Serial.println ("Sending Message");
                                                                              sim.println("AT+CMGF=1"); //Sets the GSM Module in Text Mode
                                                                              //Serial.println ("Set SMS Number");
                                                                        100 sim.println("AT+CMGS=\"" + number + "\"\r"); //Mobile phone number to send message
                                                                        105 sim.println((char)26);// ASCII code of CTRL+Z
     // tell servo to go to position in variable 'pos'
     // wait 15 ms for servo to reach the position
     delay(1); // Wait for 15 millisecond(s)
```







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