



## Students report about CO<sub>2</sub> monitoring Ученически доклад за дейността по измерване на CO<sub>2</sub>

Дата/ Date: 13.03.2024

### 1. Въведение ( Introduction):

Monitoring the concentration of CO<sub>2</sub> in a closed environment. The time period is 15 days /05.03 – 19.03.2024/. The goal is to examine the levels of CO<sub>2</sub> whether there are dust particles, change of temperature, number of people inside the room or ventilation.

Project number 2022-1-IT01-KA220-VET-000087732 –  
"CHANGE - Co2 monitoring in scHools for digitAl aNd Green compEtences"  
CUP G31B22002160006

### Event log to be used in CO<sub>2</sub> monitoring experiments Доклад за дейността при мониторинг на CO<sub>2</sub>

**Type of activity ( вид дейност):** Monitoring CO<sub>2</sub>

**Info about workspace ( информация за работната среда) -** School environment

**School and Class ( училище и клас) –** PGE „John Atanasov“ – Stara Zagora, 10b

**Room destination ( номер на стаята) -** 418

**Room surface ( площ на стаята) -** 30 m<sup>2</sup>

**Room volume ( обем на стаята) -** 90 m<sup>3</sup>

**Number of windows ( брой прозорци) -** 2

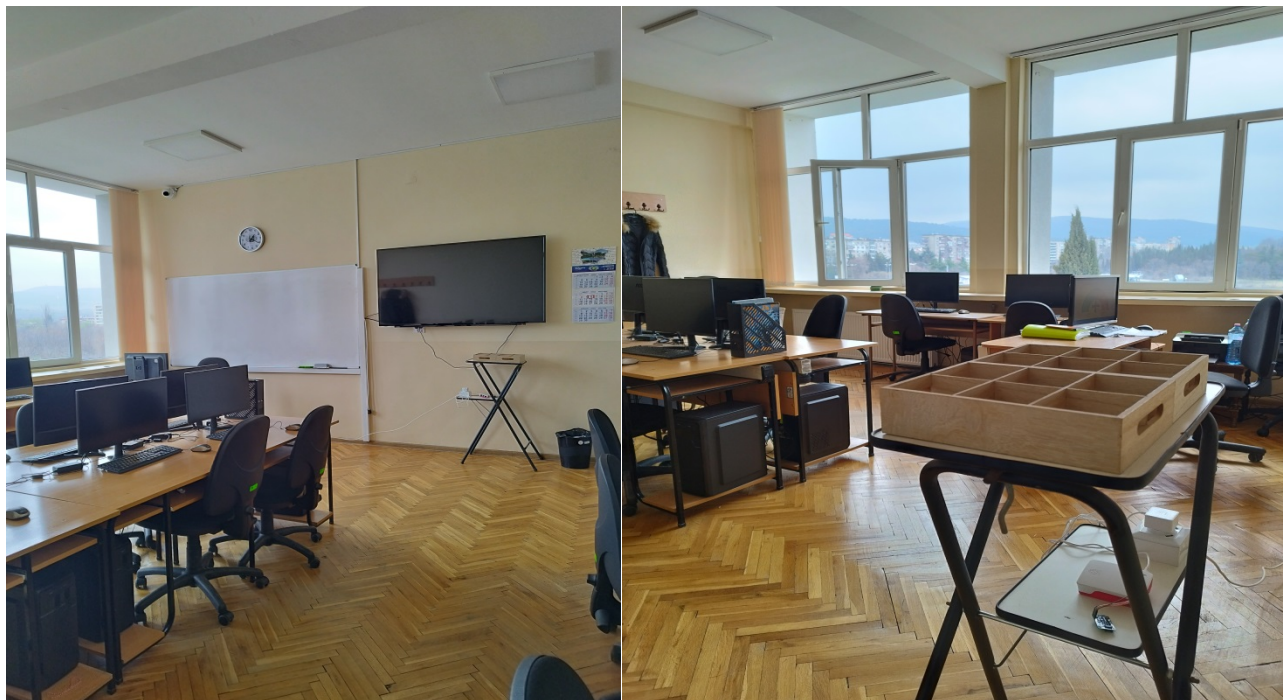
**Window opening surface ( площ отваряеми прозорци) –** (0,8 x 2) m<sup>2</sup>

**Position of monitoring stations ( разположение на устройството) –** **in the middle of the east wall**

**Position of HVAC ( Отоплителни , вентилационни системи) -** Radiator 3m<sup>2</sup> away

**Average number of occupants ( среден брой на хората) -** 7

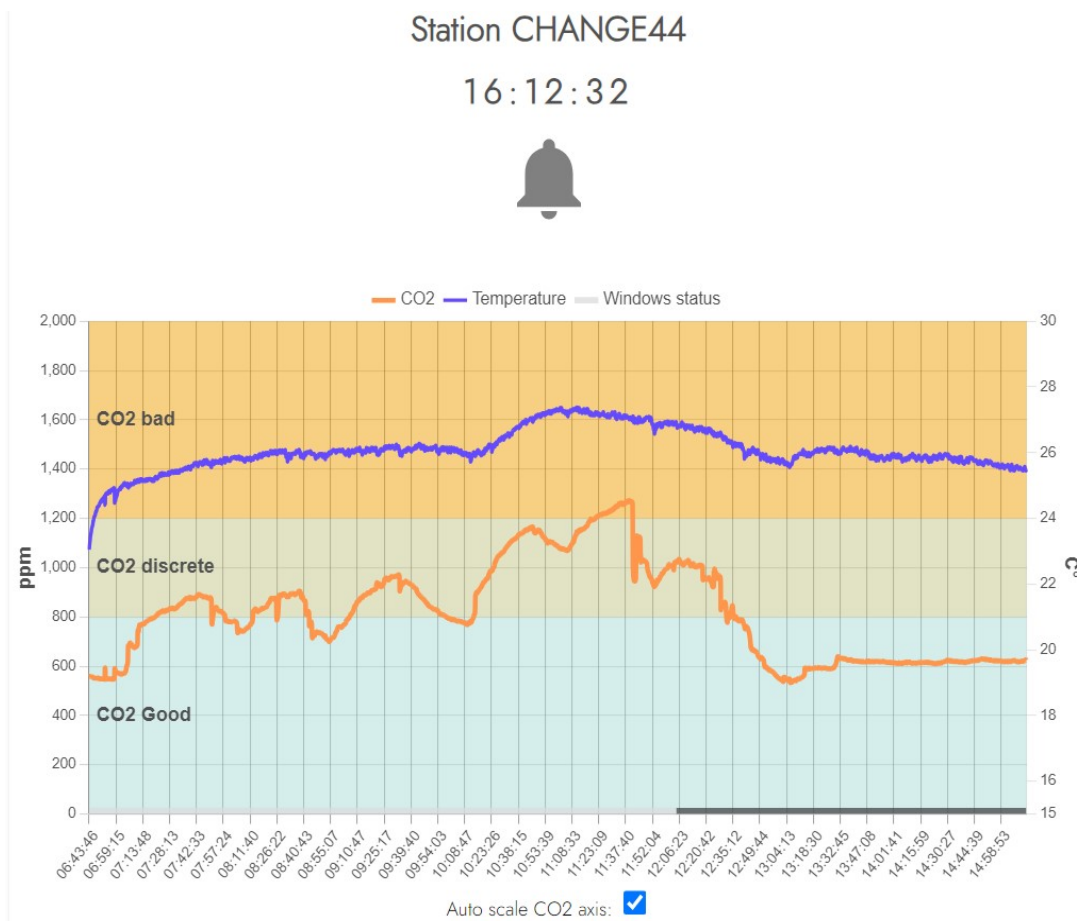
**Average occupation time (school hours?)(учебни часове: начален час-краен час )** 00:00 – 00:00



Разположение на стаята и устройството

Event Log

2. Информация (Information):



13.03

В 08:00 усиройсифоно е реситарифурано. CO<sub>2</sub> - 563  
 t - 25°, 39%, замворен прозорец, мина на уетница,  
 вложено парто. В 08:05 прозорец е отворен, 7 уетника  
 CO<sub>2</sub> 692ppm, 25°C, 39%, в началото на уетния час. В  
 08:50 - ~~830~~<sup>830</sup>ppm, 26°, 41%. В сивакия 3 уетника и  
 преградвайленд. Оий 08:55z - 09:10 - 4 уетника. В  
 09:10z CO<sub>2</sub> 832ppm, 26°, 37% айново 7 уетника.  
 В 09:40z CO<sub>2</sub> 881ppm, 26°, 37%. Оий 09:40 ро 09:50  
 няма никакъв каближия. В 09:52 часа - 724ppm, 26°C,  
 35%. В каближия 5 уетника, в 10:05 - 7 уетника CO<sub>2</sub> ↑  
 В 10:35z - CO<sub>2</sub> 928ppm, 26°, 38% → 850ppm, 26°C, 36%  
 Оий 10:35z ро 11:00z гожмо митругасие, краина сиваия. В  
 11:00z CO<sub>2</sub> - 769ppm, 26°, 37%. Оий 11:00z айново 7 уетника.  
 В 11:45z CO<sub>2</sub> 1160ppm, 27°, 38%. От 11:45z ро  
 12:00 часа в сивакия 2-ма уетника и преградвайленд. CO<sub>2</sub> ↓  
 на 1075ppm, 27°, 38%. Оий 12:00 айново 7 уетника, CO<sub>2</sub> ↑ не-  
 зависимо отворения прозорец и в края на уетния час 12:40 е  
 1271ppm, t - 27°C, влажността - 39%. Оий 12:40 ро 12:50z  
 в сивакия няма никакъв → 780ppm<sup>12:50</sup>, 26°, 37%  
 13:30 → CO<sub>2</sub> 808ppm, 26°, 36% - 8 уетника  
 13:40z няма уетници CO<sub>2</sub> ↓ спара. 13:45 - 13:50  
 няма никакъв в сивакия, ро 14:05 отворен прозорец  
 CO<sub>2</sub> - 544ppm, 26°, 36%

Start time	End time	Event	Notes
Начален час	Краен час	събитие	Бележки
08:00	08:05	Closed window	
08:05	14:05	Open window	
14:05		Closed window	

### **3.Коментари (Comments):**

On 12.03. /Tuesday/ at 21:06 in the evening due to the thunderstorm the device stopped. At 08:00 in the morning on 13.03. the device is launched. CO2 concentration 568 ppm, room temperature 25 °C, relative air humidity 39% with closed window, absence of students in the office, heating on. At 08:05 the window is open, 7 students are being taught. CO2 692 ppm, temperature 25 °C, humidity 39% were reported. At 08:50, at the end of the first lesson, CO2 readings are 830 ppm, temperature 26 °C, humidity 41%. From 08:50 to 09:10 there are 4 people in the office. From 09:10 there are again 7 students and the teacher in the office, readings of CO2 concentration 832 ppm, temperature 26 °C, humidity 37% were reported. At the end of the hour 09:40 CO2 has reached 881 ppm, temperature and humidity remain at 26 °C, 37%. In the time interval 09:40 to 09:50 the office is free. At 09:52, the graph shows CO2 724 ppm, temperature 26 °C, humidity 35%. Training starts with 5 students, at 10:05 their number is 7. Then CO2 is 850 ppm, temperature 26°C, humidity 36%. At the end of the class, the concentration reached 928 ppm, the temperature 26 °C, the humidity 38%. From 10:35 to 11:00 there is no one in the office. At 11:00 a.m. after the long break, as a result of natural ventilation from the open window, the concentration decreased to 769 ppm, the humidity to 37%, and the room temperature remained at 26 °C. The next class starts and the number of students is 7 again. At 11:45 a.m. after class, CO2 has reached 1160 ppm, temperature 27°C, humidity 38%. From 11:45 a.m. to 12:00 p.m., there are two students in the office with the repacker, which causes CO2 to decrease. At 12:00 immediately after the group of 7 students entered, a concentration of 1075 ppm, a temperature of 27 °C, and a humidity of 38% were recorded. The humidity is maintained despite the CO2 concentration dropping due to the rainy weather outside (it has been raining heavily since 11:00). At the end of the class, CO2 reached 1271 ppm, temperature 27°C, humidity 39%. From 12:40 to 12:50 the office is free. At 12:50 p.m. the training of the next group of 8 students begins. Concentration 780 ppm, temperature 26 °C, humidity 37% were reported. By 1:30 p.m., the concentration had risen to 808 ppm, the temperature and humidity remained at 26 °C, 36%. As of 1:40 p.m., there are no students in the office, the window is still open. Before it was closed at 14:05, CO2 544 ppm, temperature 26 °C, humidity 36% were recorded.

### **4. Заклучения (Conclusions):**

The concentration of CO2 drops in the absence of people in the closed room. When the level of CO2 decreases, a decrease in the relative humidity of the air is observed. The temperature keeps its values. When the number of people in the closed room increases, the concentration of CO2, the relative humidity of the air and the temperature also increase.

**Изготвили ( Issued by) : 10б клас (class)**