



Students report about CO₂ monitoring Ученически доклад за дейността по измерване на CO₂

Дата/ Date: 07.03.2024

1. Въведение (Introduction):

Monitoring the concentration of CO₂ in a closed environment. The time period is 15 days /05.03 – 19.03.2024/. The goal is to examine the levels of CO₂ 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 CO₂ monitoring experiments Доклад за дейността при мониторинг на CO₂

Type of activity (вид дейност): Monitoring CO₂

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 m²

Room volume (обем на стаята) - 90 m³

Number of windows (брой прозорци) - 2

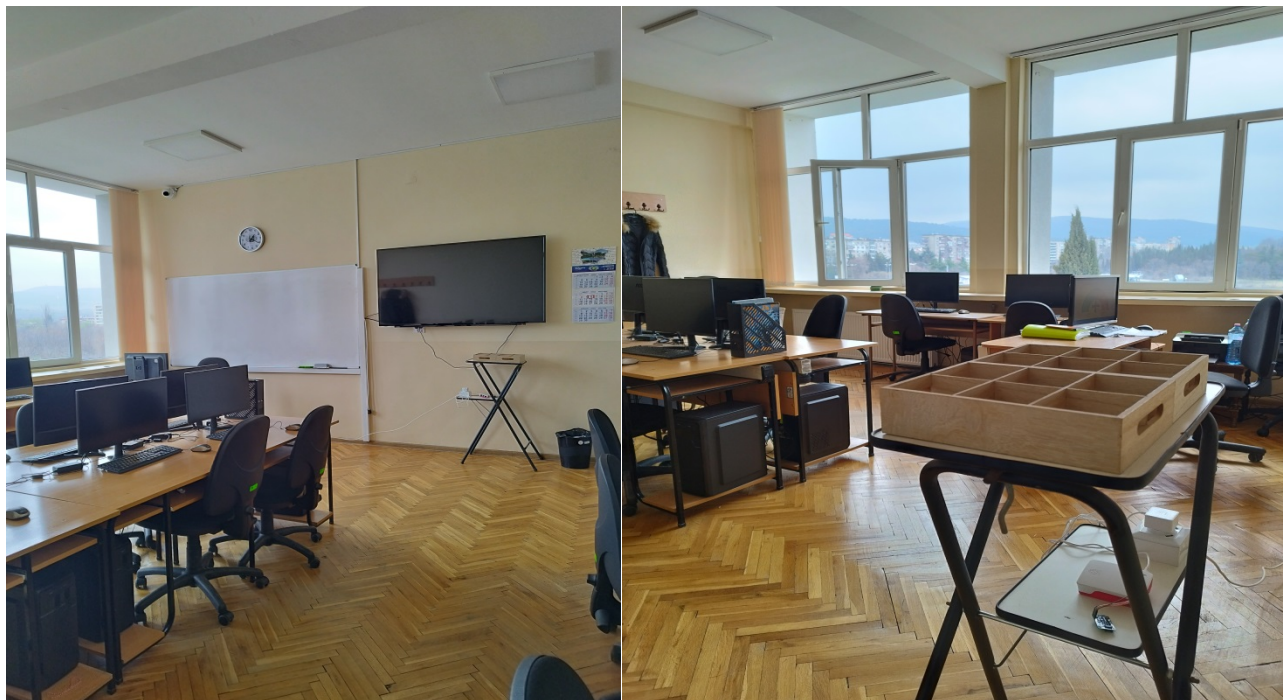
Window opening surface (площ отваряеми прозорци) – (0,8 x 2) m²

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

Position of HVAC (Отоплителни , вентилационни системи) - Radiator 3m² away

Average number of occupants (среден брой на хората) - 11

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



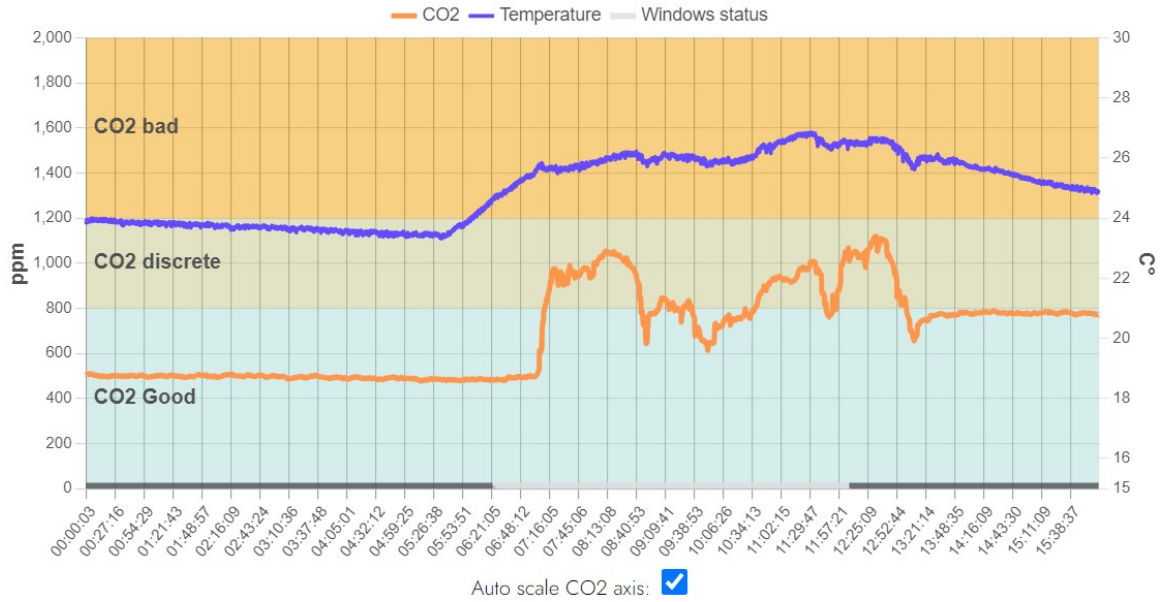
Разположение на стаята и устройството

Event Log

2. Информация (Information):

Station CHANGE44

17:05:41



07.03.2024

8:00 CO_2 - 525 ppm, t - 25°, 35%
 Ст. проз. зашворен прозорец
 Учен. 14, 8:05 605 ppm, 26°, 35% зашворен
 8:10 отворен / ирадно, влажно време
 Преди отворяне 741 ppm, 26°, 36%
 Въпреки отворения прозорец CO_2 и в 8:20 t
 е съществено 958 ppm, 36%, t - 26°C, вкл. РС
 В 8:45 CO_2 - 943 ppm, t - 26°, 34%
 ↳ буеншещо прокарнава, не се използва лангузасе
 В 9:00 t - 936 ppm, t - 26°, 34%
 В 9:40 - 908 ppm, 26°, 32%
 9:45 ÷ 9:50 няма ученици, отворен прозорец
 ↓ 650 ppm, 26°, 29%
 Ой 9:50 t в стаята - 10 ученика CO_2 ↑, ↑%,
 t се запазва = → 10:15 - CO_2 805 ppm, 26°C, 31%
 10:30 t - 824 ppm, 26°, 32%, учен. шумат в клас.
 10:30 ÷ 10:55 няма учен. отвор. прозорец / реннр
 ↳ 615 ppm, 26°, 31%
 В 10:55 - 4 човека CO_2 ↑, в 11:00 t - 10 ученика
 ↓ 717 ppm, 26°, 33%

11:50
 11:48 t → CO_2 889 ppm, 26°, 34% ↑ 10 учен.
 смен.ст; в 12:00 - CO_2 - 940 ppm, 27°, 33%
 12:40 - 963 ppm, 26°, 34%
 12:40 - 12:50 няма ученици
 774 ppm 31%
 В 14:00 - 845 ppm, 26°, 32% след приключване
 на чет. занятия
 14:08 - зашворен прозорец
 ↓ CO_2 - 698 ppm, t - 26°, 32% ↑ отворен
 ↓ 14:00 до 14:10 няма нито прозорец
 14:10 - зашворен няма нито
 В 14:20 t CO_2 - , t - 26, 32%
 749 ppm

Start time Начален час	End time Краен час	Event събитие	Notes Бележки
08:00	08:10	Closed window	
08:10	14:10	Open window	
14:10	14:20	Closed window	

3.Коментари (Comments):

At 07:55 the office is empty, the window is closed, the steam is on, CO2 concentration is 525 ppm, temperature is 25 °C, relative air humidity is 35%.

At 08:05, all 14 students of the group are in the room, the window is still closed, the CO2 is reported to rise to 605 ppm, the temperature also rises by 1 degree - 26 °C, the humidity is kept at 35%. After another 5 minutes CO2 continues to rise. At 08:10, immediately before opening the window, CO2 741 ppm, T -26°C, humidity 36% were recorded. Despite the open window, the graph shows that CO2 continues to rise and at 08:20 it is 958 ppm, temperature and humidity are holding their values. After the first lesson, at 08:45 the readings are: CO2 943 ppm, T -26°C, humidity 34%. Outside, the weather is gloomy, the temperatures are low and it is drizzling slightly, so some of the students (8 students) do not use recess. At 09:00 after the start of the next lesson, when again all 14 students are in the room, the readings are: CO2 – 943 ppm, T -26°C, humidity 34%. After the end of the hour, at 09:45 the readings are: CO2 – 908 ppm, T -26°C,

humidity 32%. From 09:45 to 09:50 the room is empty. Very quickly the concentration dropped to 650 ppm, the temperature remained - 26°C, and the humidity was also reduced to 29%. From 09:50 there is another group of 10 students in the room. At 10:15, CO2 805 ppm, T -26°C, humidity 31% were reported. At 10:30 an increase in CO2 was recorded and it reached 824 ppm, T -26°C, humidity 32%. From 10:30 to 10:55 the room is free - a long break. At 10:55, CO2 - 615 ppm, T -26°C, humidity 31% were reported. At 11:00 all 10 students are back in the room and the CO2 concentration rises to 717 ppm, T -26°C, humidity 33%. At 11:50 the concentration rises to 889 ppm, T -26°C, humidity 34%. The groups of students change. In the first minutes of the hour, at 12:00, CO2 is 940 ppm, T -27°C, humidity 33%. After the end of the lesson, CO2 is 963 ppm, T -26°C, humidity 34%. In the time interval 12:40 - 12:50 there is no one in the room. At 12:50 the readings were taken: CO2 - 774 ppm, T -26°C, humidity 31%. The training of the group of 11 students continues until 14:00. Then the concentration was recorded - 845 ppm, T -26°C, humidity 32%. The time from 14:00 to 14:10 the room is free again, the window is still open, the following values are taken from the chart: CO2 – 698 ppm, T -26°C, humidity 32%. At 14:10 the window is closed. Only the teacher is in the office, CO2 has risen to 749 ppm, T -26°C, humidity 32%.

4. Завключення (Conclusions):

The concentration of CO2 increases as the number of people in the room increases. As a result of the fluctuations of CO2, the relative humidity of the air also changes, unlike the temperature, which keeps its value almost unchanged.

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