

MEMORY OF THE WEATHER STATION

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1. Project summary

No one is unaware of the problems we have in our cities with the various types of pollution. We hear about the famous Madrid pollution beret and the pollution levels that produce restrictions in the cities. For these reasons and given that in FOCUS, our Erasmus project, we are dealing with the cities of the future, we decided to make a weather station with a series of sensors that could measure CO₂ levels and analyze the results.

Outside:

Both climate change and air pollution are exacerbated by the burning of fossil fuels, which increases CO₂ emissions. These gases are the cause of global warming.

In October 2018, the World Health Organization (WHO) reported that 93 per cent of the world's children breathe polluted air every day.

According to this report, 1.8 billion children breathe such polluted air that their health and development are in serious danger.

WHO estimates that 600,000 children died in 2016 from acute respiratory infections caused by air pollution.

The concentration of outdoor carbon dioxide ranges from 360 ppm (parts per million) in clean air areas to 700 ppm in cities.

But it is not only important to control air quality outdoors!

Indoors:

The population living in urban areas spends 90 per cent of their time indoors, at home or at work.

Air quality has an impact on the well-being of office workers. Carbon dioxide from concentrations between 800 and 2000 ppm can cause discomfort such as headache, tiredness, concentration drowsiness and low performance.

For this reason it is essential to ventilate workplaces as well as at home.

2. Aim

The aim is to detect the levels of pollution that exist in our cities and our work spaces using our portable meteorological station, making a small study based on weather, and carbon dioxide data.

3. Hypothesis

Will we be able to detect pollution levels and to pinpoint the weather in our city with a small weather station, programmed by Arduino and printed with the 3D printer?

4. Materials used

Arduino plate, sensors: rain, temperature and humidity and CO2, LCD screen, potentiometer, set of cables, 3D printer, filament, computer with Arduino program and a computer with a design program (Tinkercad).

5. Methodology

- Seeking information on air quality and pollution in cities and workplaces.
- Search for information about the operation of each sensor and the quantities with which they would measure.
- One group of us began to program, based on other work done in the network and adapting it to our needs, each of the sensors separately, and the other group began to design in parallel the stand in which station would be placed.
- Once both works were finished, we united them in a program and, after printing them, we assembled them.



6. Results

We are going to start collecting data as soon as possible.

7. Conclusions

There is no data collection to draw conclusions.

8. Bibliography

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