


A low-angle, upward-looking photograph of several modern skyscrapers with glass and steel facades, converging towards the top of the frame against a clear blue sky. The perspective creates a sense of height and urban density.

# Carbon Monoxide Sensor – IoT Project 2020

- Giuseppe Pappadia
- Simone Vitiello

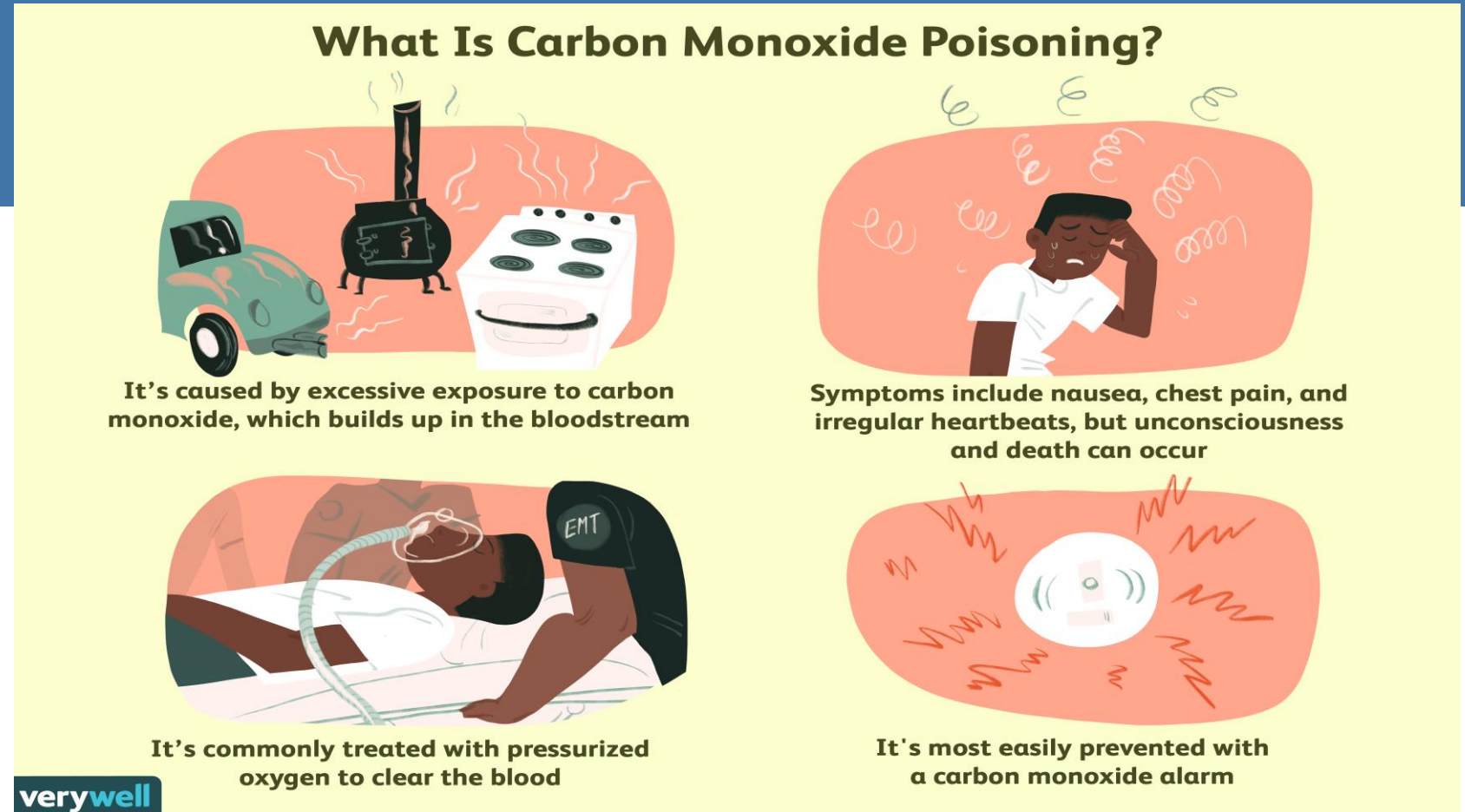


# Summary

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  - 5. Implementation*
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# The problem

- Two Main Problems :
  - Carbon Monoxide Poisoning
  - Increasing Air Pollution
- The first is due to the effect of carbon monoxide which bonds with the hemoglobin, avoiding the blood to carry oxygen ;
- According to the scientific world, carbon monoxide is one of the most polluting chemical agents .



**Table 1** CO-related deaths as reported by European Member States

Country	Reporting period	Reporting years	Deaths in reporting period	Average number of deaths per year	Annual death rate (per 100 000 population)	Range of annual death rates in reporting period
Andorra	1994–2007	14	4	0.3	0.41	0–1.56
Austria	1980–2008	29	922	31.8	0.4	0.15–0.74
Azerbaijan	1982–2008	27	48	1.8	0.02	0–0.08
Belarus	1999–2008	10	11 809	1180.9	11.99	8.61–14.64
Belgium	1995–2008	14	553	39.5	0.38	0.12–0.60
Bosnia and Herzegovina	2003–2008	6	49	8.2	0.21	0.13–0.44
Croatia	1998–2007	10	314	31.4	0.7	0.35–0.97
Cyprus	2005–2007	3	6	2.0	0.25	0.13–0.35
Czech Republic	1986–2008	23	6203	269.7	2.62	0.87–6.00
Denmark	1980–2006	27	4458	165.1	3.16	0.76–5.73
Estonia	2008	1	82	82.0	6.16	–
Finland	2000–2007	8	917	114.6	2.19	1.66–2.55
France	1985–1998, 2001–2002	16	977	61.1	0.11	0.05–0.21
Georgia	1999–2002	4	8	2.0	0.04	0.02–0.069
Germany	1980–2007	28	43 153	1541.2	1.91	0.34–4.38
Hungary	1996–2004	9	1166	129.6	1.27	0.91–1.61
Latvia	1996–2008	13	758	58.3	2.48	1.22–3.86
Lithuania	2000–2008	9	114	12.7	0.37	0.33–0.41
Luxembourg	1998–2007	10	44	4.4	0.98	0.21–1.81
Malta*	1991–2008	18	20	1.1	0.29	0–1.05
Republic of Moldova	1991–2008	18	4306	239.2	5.83	3.43–9.93
Russian Federation	2005–2007	3	54 778	18 259.3	12.81	11.32–14.07
Slovakia	1992–2008	17	719	42.3	0.79	0.59–1.07
Slovenia	1980–2007	28	1351	48.3	2.44	1.09–3.48
Spain	1981–1998	18	1932	107.3	0.28	0.20–0.38
Sweden	1980–2007	28	5449	194.6	2.24	0.89–3.81
Switzerland	1995–2007	13	266	20.5	0.28	0.15–0.44
Turkey	2008	1	84	84.0	0.11	–
Total		405	140 490	346.9	2.24	0.60–7.05

According to the Department of Forensic Medicine and Pathology Hospital of Montenegro, there were 30 lethal cases of CO poisoning in 1993–2006. However, data cannot be provided by year and underreporting may have occurred.

\*Malta data are restricted as CO reporting is limited to one large hospital. Underreporting is possible but in case of poisoning cases expected to be marginal.

# Why do we do this ?

- Even if the problem of the pollution cannot be solved with this project, it is possible to save lives ;
- According to many surveys, most of deaths by CO poisoning is due to defective devices ;
- These numbers increase in some developing countries .



# Our Solution

## CARBON MONOXIDE (CO) POISONING



**CAN'T BE  
SEEN**

**CAN'T BE  
SMELLED**

**CAN'T BE  
HEARD**

**CAN BE  
STOPPED**

- The simplest solution is to install a carbon monoxide detector, but , what makes our product different from the other ones ?
- The main feature is that there is no need to install it in a fixed position ;
- Another advantage is the portability, since the sensor is attached to a balloon ;
- Even if it may be less accurated than the other products, the cost of the components is affordable .

# State of the Art

## Kidde Carbon Monoxide Detector Alarm | Battery Operated | Model # KN-COB-LP2 9CO5-LP2

[Visit the Kidde Store](#)

★★★★☆ 11,645 ratings

Amazon's Choice for "co detector"

Price: \$14.79 + \$17.15 Shipping & Import Fees Deposit to France [Details](#)

Returnable until Jan 31, 2021

Brand	Kidde
Power Source	Battery Powered
Color	White
Item Dimensions LxWxH	3 x 7 x 11 inches
Item Weight	0.5 Pounds



## 10 Year Battery (Not Hardwired) Combination Photoelectric Smoke Detector and Carbon Monoxide Detector Alarm with LCD Display

Brand: vitowell

★★★★☆ 367 ratings

Was: \$24.99

Price: \$22.99 + \$15.93 Shipping & Import Fees Deposit to France [Details](#)



# OUR IMPLEMENTATION

- 100 Ohm Resistor
- 220 Ohm Resistor
- Gas Sensor Breakout Board
- 10K Ohm Resistor
- BreadBoard - Half Size
- Jumper Wires Pack - M/M
- Male Headers Pack- Break-Away
- Arduino Uno
- Carbon Monoxide Sensor - MQ-7
- RGB Led Common Anode
- USB Cable A to B
- Battery Holder - 4xAA

