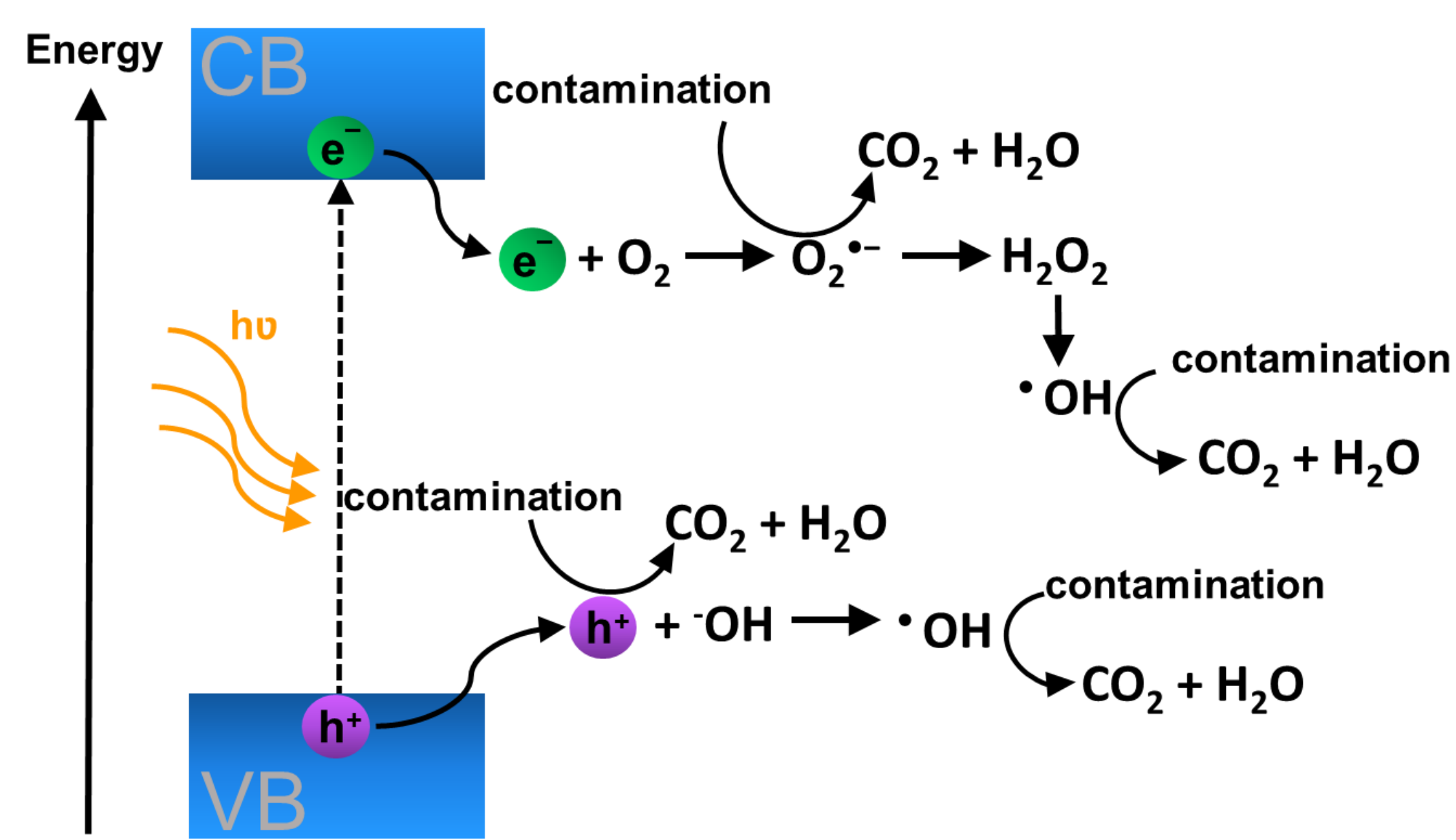


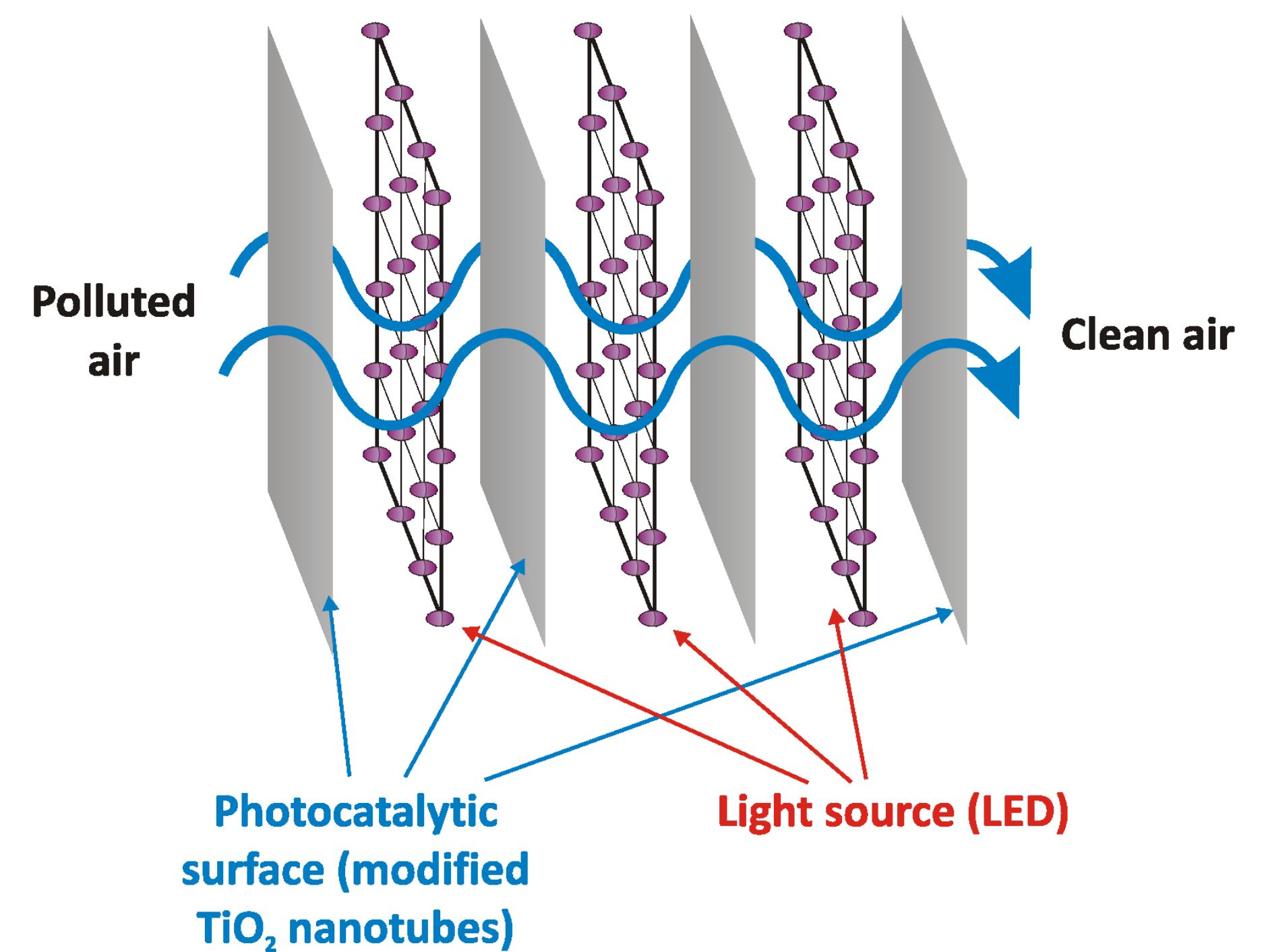
## INTRODUCTION

Air purification is becoming increasingly important because dangerous levels of air pollution are becoming common in urban areas. The air pollution is contamination of indoor or outdoor air by chemical contaminants, including (i) inorganic and organic contaminants (NO<sub>x</sub>, SO<sub>x</sub>, CO and volatile organic compounds (VOC's)), (ii) pathogens (viruses, bacteria, fungi) and (iii) particulate matter (PM). One of the most effective method for air disinfection and removing the contaminants is photocatalytic oxidation process, which strongly dependent on air flow rate/residence time, type and concentration of pollutant, humidity, light source and light intensity. The proposed solution are set-ups which can be used: for indoor air purification, for improving the quality of air in the urban agglomerations, for air purification and disinfection in the waste water treatment plants or in the landfills and in the car air conditioning [1-6].

## SCIENTIFIC BASIS

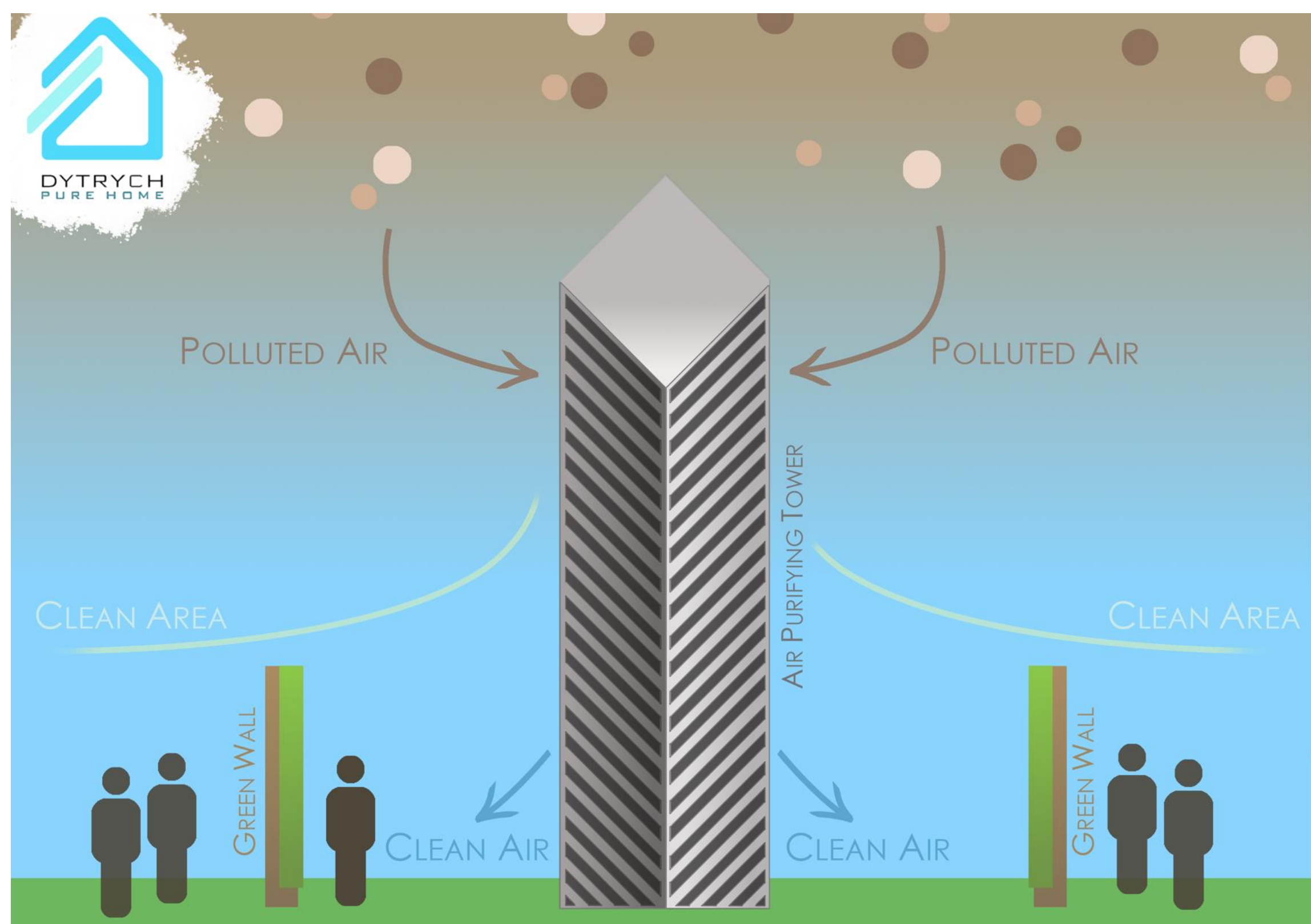
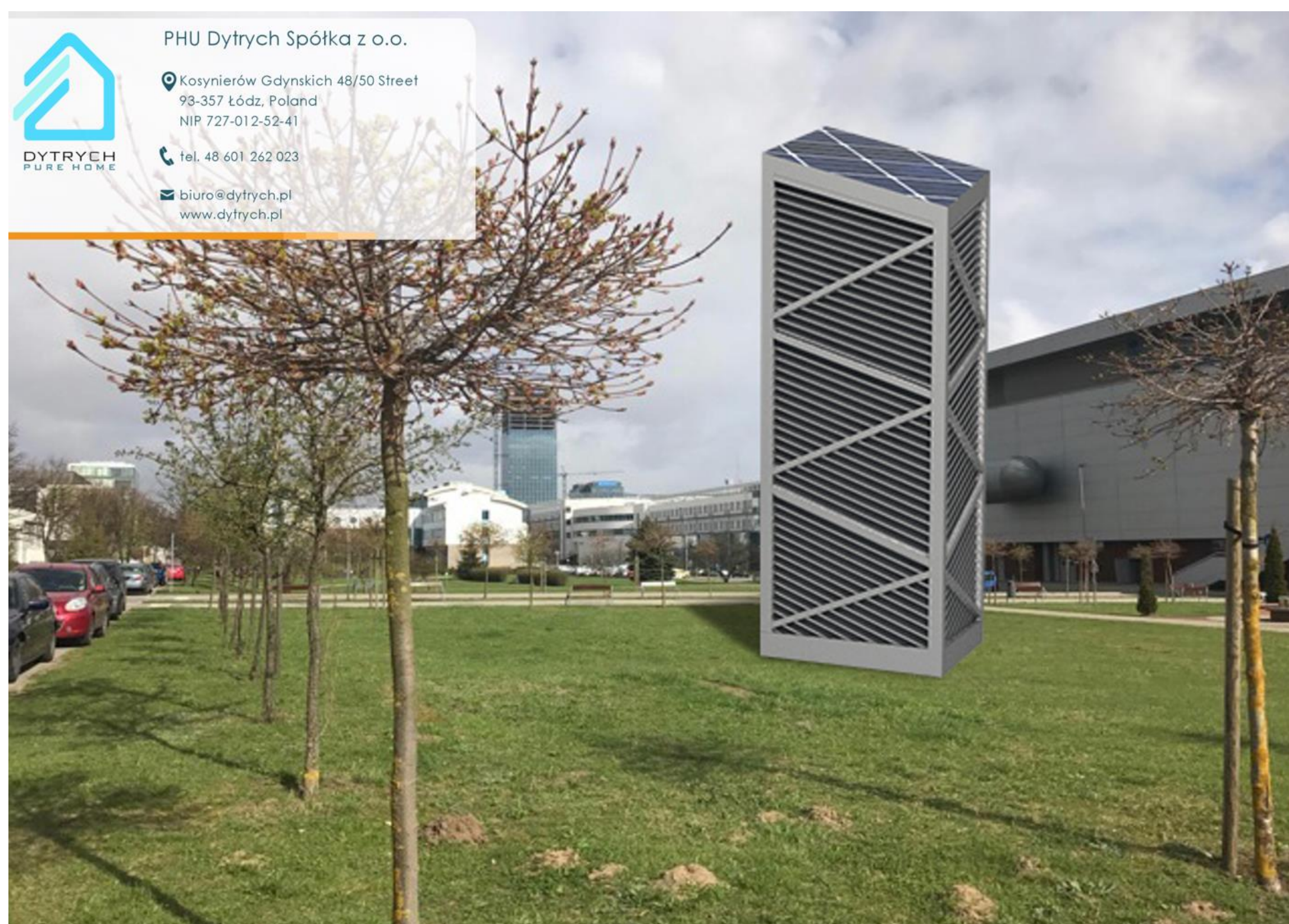


## FUNCTIONAL PRINCIPLE



## INSTALLATIONS

### Air treatment towers

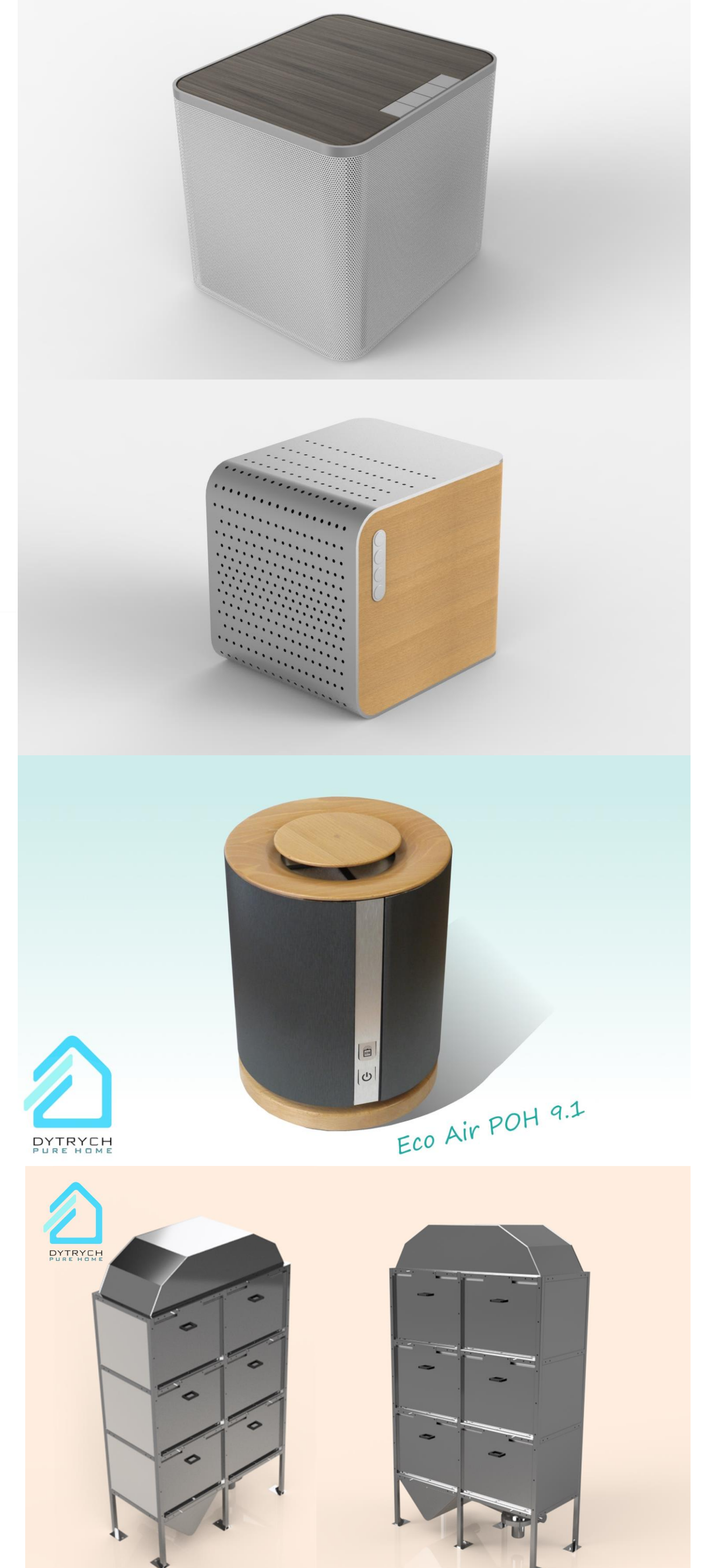


### Device for photocatalytic removal of contaminants and microorganisms from automobile A/C systems



- 95% efficiency of VOC degradation and microorganism removal from the gas phase (*Pseudomonas aeruginosa*, *Arthrobacter sp.*, *Bacillus firmus*, *Bacillus mycoides*, *Erwinia ssp.*, *Microbacterium spp.*, *Micrococcus lylae*, *Micrococcus roseus*, *Nocardia sp.* and *Pseudomonas luteola*)
- Low power consumption (~4.5 W)

### Air treatment and deodorization system



- Air treatment and deodorization system containing:
- (i) ozone module, (ii) photocatalytic module, (iii) adsorption module, and (iv) O<sub>3</sub> destroyer

### Personal gas mask



## PATENTS

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## PATENTS APPLICATIONS

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- [6] Modyfikowane powłoki porowate i urządzenie modułowe do oczyszczania powietrza zawierające modyfikowane powłoki porowate, Zaleska-Medynska A., Dytrych W., Nischk M., Mazierski P., **P.417116, 2016**.

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