Hello everyone. Welcome to our project. We are team Flitaxe. Our challenge is based on Observe and category A one health approach. Let’s introduce our project. Our project name is sustainable breeze.

Earth, our home, is the third planet from the sun. It's the only planet known to have an atmosphere containing free oxygen, oceans of water on its surface and, of course, life.

But Air pollution has been recognized as the largest global environmental health risk, causing an estimated seven million deaths across the globe annually according to the World Health Organization. There are many gas like as CO2, CO, NOx, CFC etc. and dust which are main reason for air pollution.

Polycyclic aromatic hydrocarbons is also polluting agent of air. Although polycyclic aromatic hydrocarbons found in titan and space.

But in earth polycyclic aromatic hydrocarbons (PAHs) are produced as byproducts during fuel burning or carbon-containing organic substances and found in oil, coal and tar deposit, combustion in coke ovens, diesel engines and wood-burning stoves, and are present in the atmosphere in particulate form. Natural emissions including volcano eruptions and forest fires can also emit these compounds.

Due to their mutagenic, carcinogenic, and endocrine-disrupting properties, these compounds are included in the European Union and United States Environmental Protection Agency priority pollutant list. Multiple [epidemiological](https://en.wikipedia.org/wiki/Epidemiology) studies of people living in Europe, the United States, and China have linked [in utero](https://en.wikipedia.org/wiki/In_utero) exposure to PAHs, through air pollution or parental occupational exposure, with poor fetal growth, reduced immune function, and poorer [neurological](https://en.wikipedia.org/wiki/Neurological) development, including lower [IQ](https://en.wikipedia.org/wiki/Intelligence_quotient). Long-term exposure to PAH has been linked to lung cancer.

Some of experimental research from by U.S. Centers for disease done in new work by repeat air and urine sample. The report of work is Multiple NYC legislative regulations targeting traffic-related air pollution may have led to decreases in PAH nonvolatile and BC, especially in the nonheating season. Despite the overall decrease in pyrene over the 2001–2012 periods, a rise in pyrene levels in recent years, that was particularly evident for measures collected during the heating season, and 2-naphthol, indicates the contribution of heating oil combustion and other indoor sources to airborne pyrene and urinary 2-naphthol.

Another research work also got a shocking news and that is Biomarkers of PAHs exposure were inversely associated with lung function and decrease of ph of EBC as a marker of airway inflammation in Mexican schoolchildren.

In this way, identification and determination of PAHs in environmental samples is an important topic because of their adverse effects on humans and on soil organisms and plants, even at low concentrations of these compounds. preliminary separation and pre-concentration of these compounds is usually required. Current methods for the sample preparation and pre-concentration, in terms of extracting phase can be subdivided into liquid phase based micro extraction and solid-phase based micro extraction. But those have some bottlenecks, one has sample loading problem and other has time consuming issue.

So Nanoscale carbon-based materials are used as solid sorbent materials due to their ultrahigh surface area and high chemical stability. We use their magnetic graphitic carbon nitride (g-C3N4/Fe3O4) nanocomposite which have attracted much attention in pre concentration of target analytes from different real samples, due to their gentle separation and non-destructive effects on biological analytes. As a main advantage, target analytes captured to them can be easily and selectively removed from the sample with an external magnet. In our air capture machine sample, a suction fan will be used to input the air. A filter will be placed there to separate dust from macro particle. Then air will go for next step where magnetic graphitic carbon nitride (g-C3N4/Fe3O4) nanocomposite will be kept. It will capture PAH and an exhausting fan will exhaust fresh air.

In future, we will also try to mitigate others polluting particle from air through our idea. We will study how to use our great problem can be use proper way for our future with no emission. We will study, how to use our polluting agent in the proper way for our future with no emission.

Sources we used:

<https://earthobservatory.nasa.gov/images/43419/fires-in-southeast-asia>

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<https://ephtracking.cdc.gov/DataExplorer/#/>

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