PRIMAL RESEARCH IDEAS IN SCIENCE AND MANAGEMENT
PRISM – 2022

IDEA PROPOSAL APPLICATION

Title:	Automated Air purifier using AIOT: BREATHE PURE

Category: Please tick the appropriate category

Student (UG/PG from any discipline)	✓
Researcher (PhD students / staff from research organizations)	

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Declaration: Click on the box to tick

✔	I/We hereby confirm that author/s are students (UG/PG/PhD) or research scholars working in non-profit organizations and ready to provide a valid proof for the same at any time.
✔	The submitted idea is not have been previously presented/published or submitted for consideration elsewhere.
✔	I/We hereby declare that I/we read and accept all the terms and conditions.

What scientific problem are you trying to solve?

Ever since Vehicle emissions and Industrialisation has hit the environment, the air has always been contaminated and harmful for living beings. While we have always been focusing on the outdoor air pollution and initiating measures to prevent it, the indoor air pollution, on the contrary, had been paving its way around and we haven't prioritized it highly.

According to recent research done by several institutes, it has been found that the death ratio due to indoor air pollution is increasing at a rapid pace. Indoor air pollution from solid fuels accounted for 3.5 million deaths and 4.5% global daily-adjusted life year (DALY) in 2010; it also accounted for 16% particulate matter pollution. Several health issues due to indoor air pollution, include:

- 1. Asthma
- 2. Lung Cancer
- 3. Chronic Obstructive Pulmonary Disease (COPD)
- 4. Ischaemic Heart Disease

Purifying the air is an already existing form of preventing indoor air pollution, but keeping a track of what you are inhaling, is something no one has come up with frequently. Furthermore, there are many IEQ (Indoor Environmental Quality) software, created to calculate indoor air quality. IAQ measurements typically include temperature, humidity, draft, particles (PM2.5) and gases such as CO and CO2. But that software only focuses on sensing and calculating the contaminated air. It does not prevent or solves the given crisis. Therefore, the idea of the model and software, named BREATHE PURE has been taken into consideration.

Outline your idea

The proposed idea is to calculate pollutants in the environment, through an IEQ detector, which provides instructions to the built software and further, it controls the model, i.e., the air purifier and completes the process by switching it ON and purifying the air, accordingly.

The detector is linked to the software in such a way that whenever the levels of pollutants grow in the surrounding air, the detectors immediately send a signal to the built application. As soon as the user receives a message through the application, there appears an option to turn ON the air purifier, which has already been linked to the application using software. The purifier intakes the toxicity of air i.e., collects dust and pollen and traps microscopic particles and filters it. Purified air is then circulated back into the room. The filtration process repeats several times an hour, continually boosting indoor air quality. The levels can be adjusted as per the requirements. When the number of pollutants detected in air reaches the threshold, then the purifier gets switched ON automatically.

The model also consists of a feature to humidify the environment by releasing/adding moisture to the air and prevent dryness. It also introduces fragrance into the air of interior spaces either as droplets which transition to vapor, or as the molecules of fragrance ingredients directly evaporating from a source. Both features can be turned on through the application as and when required.

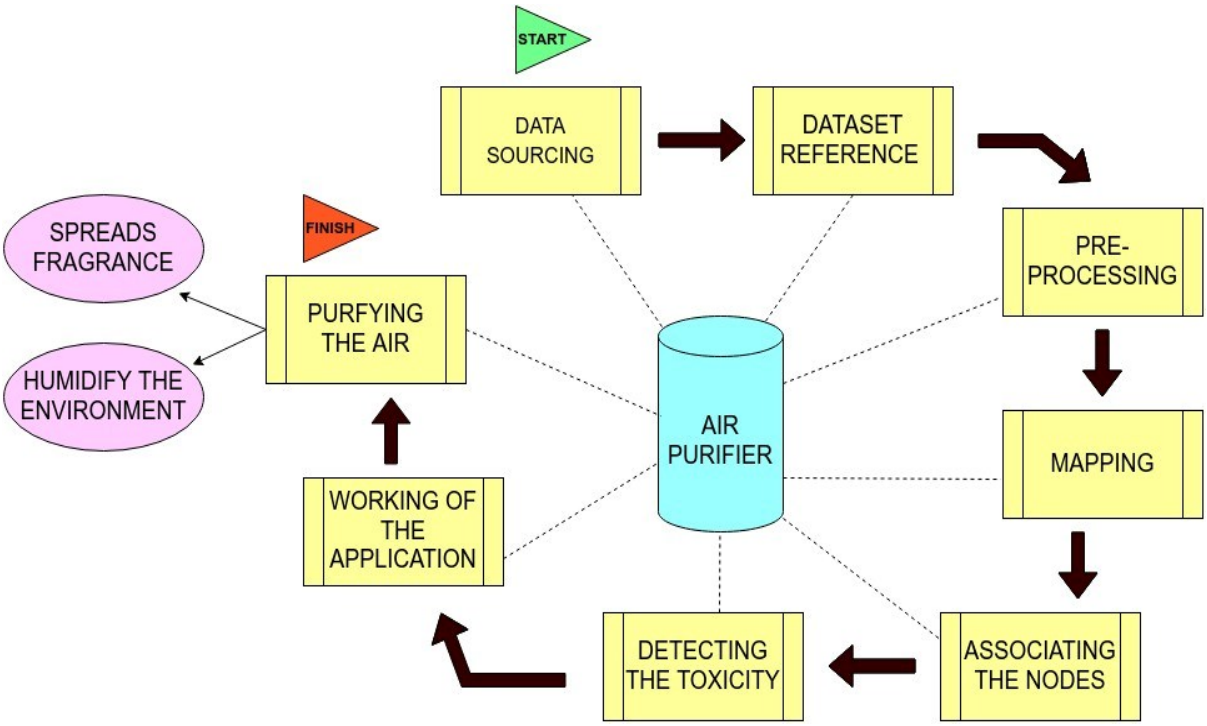
The model has several other attributes such as the In-App Store, which helps the user to buy the accessories required for the model to work. The accessories include Refills of the Odour fluid, Filters (to be replaced) etc.

The User profile in the application also tracks the daily, weekly, and monthly analysis of the air purified.

Provide possible outcomes for a new idea

- 1. The detailed Analysis helps the user to keep a track of the environment around him and help him to inhale safe particles.
- 2. It gives an easy interface to control the model.
- 3. The model is self-capable of detecting, purifying and providing its own products for the modification purpose.
- 4. The humidifier function of the model will provide the user so many benefits like- reducing dry skin, sinus problems, cracked lips, relieving allergy and asthma symptoms
- 5. One of the benefits of adding essence to the atmosphere will be, Pleasant smells are scientifically proven to evoke positive, uplifting emotions and good memories.

Additional Details:



The image describes all the main steps taken by the model to increase the air quality.

As the image describes after detecting the toxicity by the model, it will pass information to the application and it will log the data according to time and scale for future reference