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OVPS – ORGANIC VAYU PURIFIER SYSTEM

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ABSTRACT

This invention is a simple, low cost, natural air purification mechanism powered by solar cells. An air purifier or air cleaner is a device which removes contaminants from the air in a room to improve indoor air quality. This Organic air (Vayu) purifier system is a five layer mechanism used to filter, purify the air, kill germs and increase the fragrance of the room. The system piggybacks off the natural processes of air purifying plant composites which naturally eliminate toxins in the air. The process comes down to its filter and its design, which increases airflow through the plant composite. The entire system is completely eco-friendly as the purifier uses plant composites for purification and is powered by solar cells.

Keywords: OVPS, Organic air purifier, Vayu purifier

I. INTRODUCTION

Air pollution in India is a serious health issue. The air quality in India is deteriorating. The most polluted cities in the world, 22 out of 30 were in India in 2018. As per a study based on 2016 data, at least 140 million people in India breathe air that is 10 times or more over the WHO safe limit and 13 of the world's 20 cities with the highest annual levels of air pollution are in India. Air pollution contributes to the premature deaths of 2 million Indians every year. Though most of us take all the precautions to stay safe from outdoor pollution, we are not very concerned about the indoor air quality. Many of us are not aware of the fact that indoor air is 5 times more polluted than the outdoor air. The ventilation techniques that we use to make our homes comfortable also trap pollutants leading to indoor air pollution. Hence an air purification system suitable for both indoor and outdoor environments is required.

II EXISTING SYSTEM

- An air purifier or air cleaner is a device which removes contaminants from the air in a room to improve indoor air quality.
- These devices are commonly marketed as being beneficial to allergy sufferers and

asthmatics, and at reducing or eliminating second-hand tobacco smoke.

- The commercially graded air purifiers are manufactured as either small stand-alone units or larger units that can be affixed to an air handler unit (AHU) or to an HVAC unit found in the medical, industrial, and commercial industries.
- Air purifiers may also be used in industry to remove impurities from air before processing. Pressure swing absorbers or other adsorption techniques are typically used for this.

III DESCRIPTION

The most conventional method of air purification system is ineffective since most of them utilizes Inorganic materials. This invention is a simple, low cost, natural air purification mechanism using plant composites for purification and solar cells to power the blower and exhaust fan.The entire system is an ecofriendly innovative idea as it uses organic composites for purification and operates on solar energy.

III METHODOLOGY

The Organic Vayu Purifier System (OVPS) has three design variants.

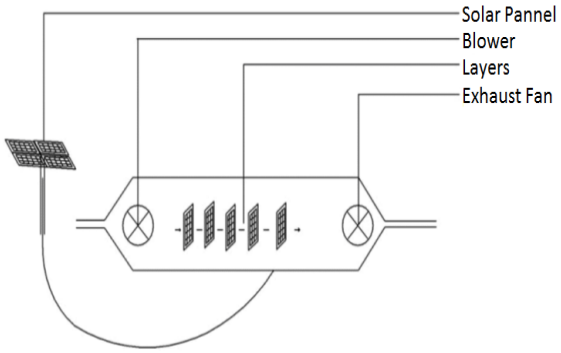
Mode 1: Mask for individuals

Mode 2: OVPS system for closed environments serving residential and office purposes.

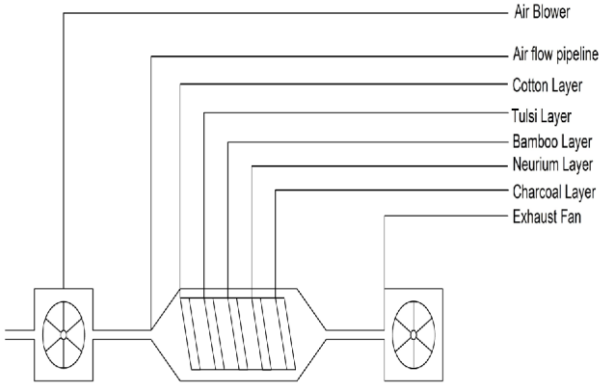
Mode 3: OVPS system for industrial applications.- the air inside buildings can also be polluted.

MODE: 1 MASK

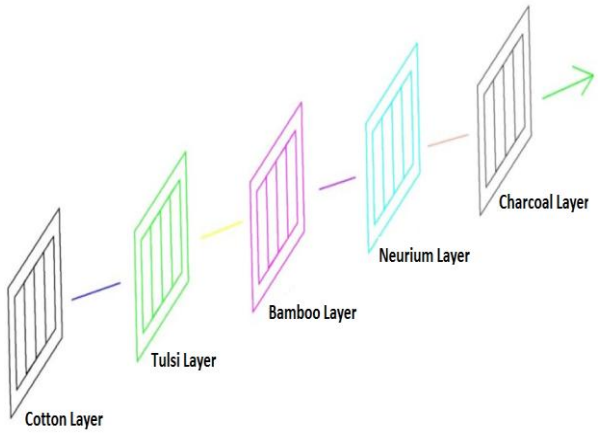
MODE: 2 DOMESTIC PURPOSE



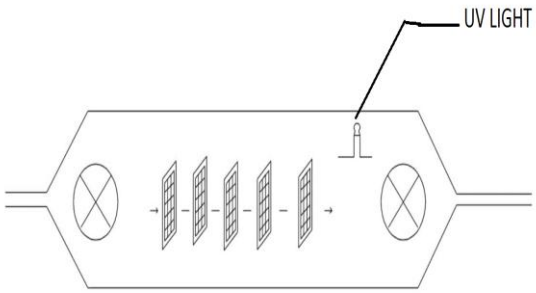
FRONT VIEW OF DOMESTIC AIR PURIFIER WITH SOLAR PANEL



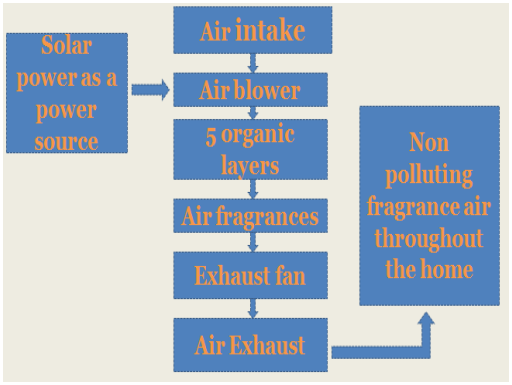
FRONT VIEW OF DOMESTIC AIR PURIFIER WITH LAYERS



DIFFERENT LAYERS



FRONT VIEW OF DOMESTIC AIR PURIFIER WITH UV LIGHT



FLOW DIAGRAM

MODE: 3 INDUTRIAL PURPOSE - CATALYTIC CONVERTER – PROTOTYPE

FRONT VIEW OF OVPS WITH SOLAR PANNEL

TOP VIEW OF OVPS

SIDE VIEW OF OVPS

FRONT VIEW OF OVPS

IV STEPWISE ACTIVITIES AND SUB-ACTIVITIES

This system consists of an air blower, air flow pipe line and an exhaust fan. The air is passed through a five layered filter for the purification process. The blower and the exhaust fan are operated using solar cells to suck the air from the atmosphere. The first layer of the filter is a cotton air filter which removes the μM Particles. The next three layers are tulsi, bamboo and Neurium content composites. These three layers serves as a filter cum purifiers. These layers reduce the content of CO, CO_2, NOx and kills the germs. The fifth layer consists of carbon filter to reduce the finest dust particles in the air. The air purifier consists of alternative fragrance which maintains a good smell in the room

V ADVANTAGES

- Natural process
- Non polluting
- Solar power usage
- Eco-friendly
- Low cost
- Portable
- Additional fragrances

VI CONCLUSION

- The unique aspect of this innovation can be utilized in almost all environments like, individual mask, closed environment and also for industries

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