

CONTROL OF AIR POLLUTION BY INSTALLING AIR**PURIFICATION TOWER**

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Abstract:

The air that living things breathe in any outdoor locations is not as fresh as their body needs. The risk of illness, due to the pollutants present in air is high. The present day automobile exhausts crisis depends on changes in attitude, type of vehicles, models, year of manufactures and Bharath standards. Environment has adverse effect due automobiles throughout the globe. This has made to focus on automobile exhausts crisis one of the main cause is increase in the vehicle ratio in the city and data obtained from vehicle growth scenarios. To overcome this illness there should be the purification towers to purify the polluted air. Over project works under the basis of purifying the polluted air for traffic signals. This tower helps to purify air by intake of air with the pre-filter and after heated with heating coils it was taken towards the secondary filter which filters up to 0.1 micron particles. Moreover the design has been conceptualized keeping in mind the dynamics of air flow and Bernoulli's principles. The concept has been derived from nature. Trees, as they form a basis of air purification in the ecosystem, give it inspiration and the mechanism used in it is very cheap and easily available without much strain.

Key Words: Automobile, Environment, Vehicle & Traffic Signals.

1. Introduction:

Outdoor air pollution is among the top five environmental health risks. Usually the best way to address this risk is to control or eliminate the sources of pollutants. If the usual methods of addressing outdoor air pollution are insufficient, air-cleaning devices may be useful. Air filters and other air-cleaning devices are designed to remove pollutants from outdoor air. Some are installed in the ductwork of a home's central heating, ventilating, and air-conditioning (HVAC) system to clean the air in the entire house. Portable room air cleaners can be used to clean the air in a single room or in specific areas, but they are not intended to filter the air in the whole house. Air-cleaning devices are categorized by the type of pollutants particulate and gaseous that the device is designed to remove or destroy. Two types of air-cleaning devices can remove particles from the air: mechanical air filters and electronic air cleaners. Moreover the design has been conceptualized keeping in mind the dynamics of air flow and Bernoulli's principles. The concept has been derived from nature. Trees, as they form a basis of air purification in the ecosystem, give it inspiration and the mechanism used in it is very cheap and easily available without much strain. However, further modifications to this concept can take this to greater efficiency to tackle the modern Pollution problem that the world is facing today.

2. Problem Definition:

Air pollution is one of the most serious problems in the world. It refers to the contamination of the atmosphere by harmful chemicals or biological materials. According to the survey conducted by Blacksmith Institute for a pure earth in 2008, two of the worst pollution problems in the world are urban air quality and outdoor air pollution. To solve the problem of air pollution, it's necessary to understand the issues and look for ways to counter it.

3. Scope of the Project:

Main scope of the project is to maximize the effectiveness of air purifier and conserve as much electricity as possible. Similarly, if you are not using the purifier to reduce allergies, consider keeping windows open to allow for ventilation of smoke or other undesirable particles in the air, if the weather allows. An Air Purifier is actually a preventive medical device which has now taken shape of a lifestyle product. Key uses of air purifier are to prevent asthma, Improve immunity, Improve sleep pattern, Improve concentration, Prevent asthma attacks, Prevent allergy attacks, Prevent cold-n-flu, Makes your heart healthy, Improve skin tone and to Improve blood circulation.

4. Components:

The fabrication of air purification tower is consisting of the following components to full fill the requirements of complete operation of the machine. The project consist the following parts

- Sheet Metal
- Exhaust Fan
- Filter
- Heating Coil
- Frame
- Electrical Wire
- Storage Tank



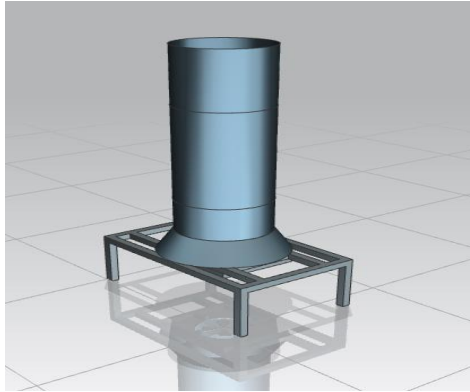
5. Drawing for Air Purification Tower:

Figure 1: 3D-Model for Air Purification Tower

Fabricated Model:**6. Working Principle:**

- The project deals with purification of air with air purification tower. It consists of exhaust fan, heating coil, filters, and frame setup arrangement.
- Suction of air takes place with the exhaust fan fitted to the inlet of the tower. Through this suction, the impure air is moved to further purification process.
- With help of heating coil, heat is added to the impure air passing through the metal pipe. As the air is heated, it moves upwards.
- The heated air passes through the air filter and thus the impure particles are collected in the segments of the filter.
- This process is finally comes out of purified air. It's mostly used in the traffic place, air pollution place, etc.

7. Merits:

- Easy to operate
- Less maintenance
- Electrical power is enough
- Occupy Less Space
- Less skilled operator is sufficient
- Project to use this in efficient way to control the pollution

8. Applications:

Applicable in traffic signals, automobiles parking area.

9. Conclusion:

The increased air pollution in cities is harmful to the environment and affects the ecosystem. By implementing this purifier, the harmful gases along with the dust particles are removed and the pure air is released into the atmosphere. This project provides a remedial solution to most of the breathing problems faced by the living creatures. By implementing the air purification tower in many numbers, large amount of impurities can be removed from air throughout the cities thus resulting in a pollution free environment.

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