

A Short Technical Report towards A4020 – PR (P) Course

AIR SANITATION MODEL

Submitted in the Partial Fulfillment of the
Requirements
for the Award of the Degree of

BACHELOR OF TECHNOLOGY

IN

INFORMATION TECHNOLOGY

Submitted

By

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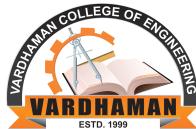
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CERTIFICATE

This is to certify that the short technical report work entitled "**Air Sanitation Model**" carried out by **Mr. Karthik reddy**, Roll Number **18881A1227**, **Mr. Indrasena reddy**, Roll Number **18881A1230**, **Ms.Priyankka**, Roll Number **18881A1237**, **Ms. Saipriya**, Roll Number **18881A1250**, **Mr. Harish**, Roll Number **18881A1258** towards **A4020 – PR (P)** course and submitted to the Department of Information Technology, in partial fulfillment of the requirements for the award of degree of **Bachelor of Technology** in **Information Technology** during the year 2020-21.

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Abstract

Factories, vehicles and use of non-renewable energy pollutes the air around the cities. The solution that people use to clean the indoor air in the polluted areas are called air purifiers. It is a device that most people that are affected by poor air quality keep in their homes and offices. The air purifiers function is usually to create an airflow in the home by suction from a fan inside the device. The air then passes through some sort of filter media which traps the polluted particles, and out comes clean air.

Our Air Sanitation model, and its goal is to provide affordable air filter that uses UV light and charcoal filtration.

- To provide a reliable and efficient Air sanitising model for potential users like low- end customers, Asymptomatic Covid patients, quarantined people in homes.
- To improve air quality, We use a method of UV-c disinfection in our model, which uses germicidal ultraviolet light to deactivate harmful pathogens.
- Instead of the Disinfectant sprayers, Our model can be utilized to create a healthy home.

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ABBREVIATIONS

Abbreviation	Expansion
HCD	Human Centered Design
W	Watts
V	Voltage
UV	Ultra violet

HEPA	High-Efficiency Particulate Air
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CHAPTER 1

INTRODUCTION

Many countries and larger cities in the world are struggling with severe air pollution today. Factories, vehicles and use of non-renewable energy pollutes the air around the cities. In China and India this is a major problem, the polluted cities in these countries are home to more than 1 billion citizens.

The solution that people use to clean the indoor air in the polluted areas are called air purifiers. It is a device that most people that are affected by poor air quality keep in their homes and offices. The air purifiers function is usually to create an airflow in the home by suction from a fan inside the device. The air then passes through some sort of filter media which traps the polluted particles, and out comes clean air.

However, most air purifiers on the market today are using a so called HEPA filter, which need replacement every few months and consume a lot of energy. This solution is rather costly and is not suitable for everyone, since one of the most important factors to customers when buying an air purifier is the price. An air purifier is also a part of the furnishings in a home, which also makes the aesthetic design of the air purifier important.

1.1 Motivation

Current evidence suggests that transmission of SARS-CoV-2 occurs primarily between people through direct, indirect, or close contact with infected people through infected secretions such as saliva and respiratory secretions, or through their respiratory droplets, which are expelled when an infected person coughs, sneezes, talks or sings.

We speculate that using air filtering near a coronavirus patient may reduce the viral load in the environment sufficiently to decrease the probability of health care worker infection through flaws in Personal Protective Equipment (PPE). Further, we speculate that a significant mode of disease progression occurs through lung tissue re-infection through air circulation in the environment of the patient.

The natural load of disease transmission from one individual to another through the air could serve as a mechanism of self re-infection, expanding the infection across multiple regions of lung tissue.

Motivated by this speculation, it may be possible that reduction of the viral load in the environment would lead to substantial decrease of the severity of individual disease. Moreover, it may be possible to enhance this effect through breathing exercises that exhale contaminated air in the lung, decreasing further the viral load inside the lung and its ability to cross contaminate other parts of lung tissue. Finally, it may also be possible to use tubes inserted in the mouth or lung to suction contaminated air, to decrease the severity of disease.

These speculations deserve attention because of the dramatic risks that we face. Rapid action on evaluating the validity of these ideas seems vital.

1.2 Scope

Our project device has a major role to play during the COVID-19 public health emergency. UV disinfecting devices are devices that use UVA or UVC light to produce a germicidal effect. They are intended to augment disinfection of health care environmental surfaces after manual cleaning has been performed. UV disinfecting devices include UV radiation chamber disinfection devices. These air purifying devices are intended for medical purposes to kill pathogens/microorganisms in the air by exposure to UV radiation or remove them through filtration.

The process used in this project was a human centered design process inspired by the process described in IDEO. Our intention by using a human centered process

instead of a user centered process, was initially to fulfill all stakeholder needs not only the users. The focus during our project laid however on satisfying the user needs. We see the users of the product as the most important stakeholder since they are the ones that eventually are going to purchase the product, and satisfying their needs will be most crucial for a successful product. However, the other stakeholder needs was also in mind during the project.

This project will not only affect the users, so therefore it is relevant to specify the different stakeholders that will be affected by our development and design choices.

To identify the different stakeholders in this project, we first discussed and brainstormed around how and why different people could be affected by this project. The different stakeholders that we found was discussed among us. The result that we have come up with was the elder people aged 65 years above, the youngest ones' whose immunity is just building and all others who are less immune and most vulnerable needed it the most.

The stakeholders were further specified according to ISO to find certain characteristics that could influence the project, such as knowledge, experience, skill, habits, and preferences.

1.3 Objectives

- The objective for this project is to develop and design concepts for the next generation of air purifiers with the users in focus.
- The solution aims to meet the stakeholder demands, be socially, economically and environmentally sustainable.
- The aim is also to design air purifiers that are more attractive for buyers and thereby also be a part of the work to improve the air quality and human health in polluted cities.

- EPA says concentrations of some indoor pollutants are 2 to 5 times higher than outdoor concentrations.
- To provide a reliable and efficient Air sanitising model for potential users like low-end customers, Asymptomatic Covid patients, quarantined people in homes.
- To improve air quality, We use a method of UV-c disinfection in our model, which uses germicidal ultraviolet light to deactivate harmful pathogens.
- Instead of the Disinfectant sprayers, Our model can be utilized to create a healthy home.

1.4 Need for Product Realization

Product Realization combines community partner requirements, technological capabilities, and resources to define new product designs and the requisite manufacturing and field support processes.

The relevance and viability of specific elements of the product realization process are determined by considerations related to the roles of Community partner, including channels and suppliers; technological feasibility, including information requirements and organization, including people, management, and the incentives and measures that affect productivity.

Detailed design is the process of translating community partner requirements into a comprehensive description of a realizable product. It moves through the capture of design intent to design verification, to the physical realization of a high quality, realizable artifact meeting the requirement of community partner.

There is an need for product realization :

- To built a sustainable society by using the resources carefully and the same time providing a useful product to all stakeholders.
- Making the life of beings better by providing a sanitation model which improves the environmental quality.
- To built a quality life by addressing one of the important social need of pollution-free, hygiene environment.

The emphasis in production has evolved from low-cost, labor-intensive manufacturing through capital-intensive, high-volume manufacturing to state of the art, high variety, small-batch, flexible manufacturing. The latter reflects the need for increasing responsiveness to market changes and pre-supposes shorter product development intervals. The necessary changes in product realization, major organizational changes supported by major technological changes that are being driven by competition and fueled by technological advances.

Key external benefits of increased responsiveness include survival, first to market, more flexible market strategy, ability to use the latest technology, more accurate forecasts, and greater market share.

Major internal benefits include control of product development through better regulated and communicated engineering changes, enhanced co-operation and more open information flow, and lower product realization costs.

1.5 Product Realization Process

Product realization, it is practiced with state-of the-art organization and technology, can be viewed as a series of stages.

1. Advanced Technology Development

Definition

Advanced technology development is the process of evolving new materials, processes, and tools for creating new, more competitive products. It is relevant research tightly linked to design, engineering, manufacturing, and marketing.

Present Practice

They tend to be autonomous organization, separate from design, engineering, manufacturing, and marketing. Their inbred culture frequently presents barriers to communication with the rest of the enterprise and their mission statements are seldom tied to the ultimate success of a product in the market. Each organizational unit from advanced development to marketing tends to maintain its own data base and use its own language to describe a product.

2. Conceptual Design

Definition

Conceptual design involves capturing customer or market requirements and converting them to design specifications that are sufficiently detailed to permit concept selection.

Present Practice

The conceptual design process currently involves very little science and few methods or support tools to assure completeness and accuracy. Inadequately captured requirements lead to wasted resources, frequent re-engineering, missed market opportunities, and customer dissatisfaction.

3. Development of Product Quality

Definition

Product quality relates to the extent to which a product meets or exceeds customer expectations for functionality, robustness, and reliability.

Present Practice

A weak approach to the development of robust, reliable, manufacturable products is a major bottleneck product realization process. Prototypes that are built from non-robust designs have much longer development times and, ultimately, result in inferior products. Research is greatly needed in both robust design and rapid prototyping. Current activity in the area of robust design consists almost exclusively of the implementation of methods.

4. Detailed Product Design Process

Definition

Detailed design is the process of translating customer requirements into a comprehensive description of a manufacturable product. It moves through the capture of design intent, to design verification, to the physical realization of a high quality, manufacturable artifact.

Present Practice

Design processes are often complex and not well understood. Computer-aided engineering (CAE) has so far penetrated only about 10 percent of the engineering community. CAE tools are mostly stand-alone or poorly integrated, utilize closed architectures, do not generally reflect the unique processes of individual users, and tend to be aimed at specific engineering segments.

5. Production Capacity Development

Definition

Production capacity development encompasses process planning; design, quality, tool, and factory industrial engineering; facilities planning; training; and production staffing.

Present Practice

In most industries, manufacturing, marketing, and product design are separate management areas that often have conflicting goals and communicate very little with one another. As it stands today, the many systems that support these individual areas cannot be integrated to provide a seamless view of the capabilities of the organization.

6. Production

Definition

Production is the means by which raw materials are transformed into products of appropriate quality at minimum time and cost. Production assumes a detailed product definition, including a description of function, geometry, materials, and tolerances, a process plan, and production capability.

Present Practice

The extent to which a design is feasible from a cost and quality perspective is limited by the available set of processes; poor choice of tooling may lead to inefficient use of production facilities (as recent experience with flexible manufacturing systems has demonstrated), and designs that specify too many parts can increase both the cost and complexity of assembly.

7. Distribution and Marketing

Definition

The concept of distribution and marketing includes selling products quickly, responding continuously to customers' needs and desires, making the public aware of the variety of products available, and distributing products to customers.

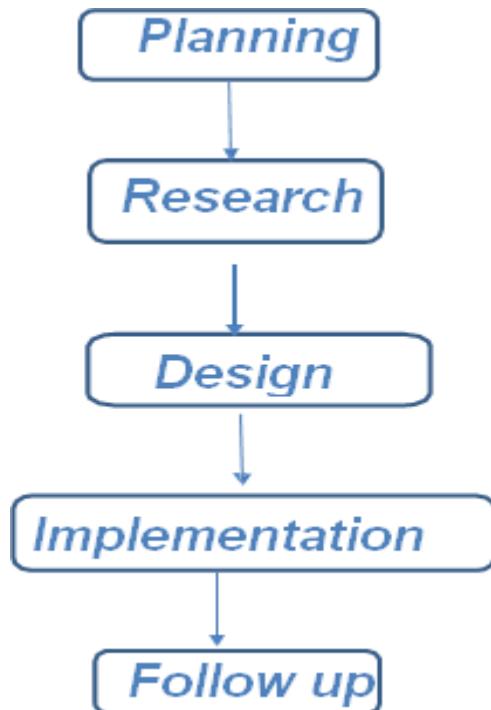
Present Practice

Distribution and marketing are separated both organizationally and technologically from the rest of the product realization cycle. As separate organizations, they lack both access to information and the influence necessary to affect product realization times.

CHAPTER 2

PRODUCT REALIZATION PLANNING

2.1 Flow Chart



The 5 steps that we follow in our PRODUCT REALIZATION PLANNING are

1. PLANNING:

We have together decided to continue our EDT project “ Air Sanitation Model ” and build a product which will be useful and economic. We have first decided to gather all the requirements (online and offline), then proceed with other processes. We have planned to complete this project successfully by the last week of May or may be extend it further depending upon the circumstances.

2. RESEARCH:

We started our research about the equipment we need. We have listed down the quantity in units for each component. We are required to

check the quality. We will also study about each component and think of a substitution in case of emergency. This process will take a week.

3. DESIGN:

We will design our end product as soon as we get all components according to the design methodology that we have opted by taking insights and suggestions from stakeholders. The entire process may take a time period of 10-12 days.

4. IMPLEMENTATION:

After the design process, we would implement our product by testing its working and efficiency for few days before it is market-ready. This will take 7-8 days for good results.

5. FOLLOW UP:

After all the development and testing processes it is necessary to have a follow up on our product. This is usually done by taking feedback from the users or have some rating apps or websites related to our product .

2.2 Steps Involved In Product Realization

The first week of the project was dedicated to planning. The project planning started with a discussion about what the purpose of the project was and how it could fit within the given timeframe and resources, and also what objectives and aims the project were to have. When planning a project, it is a good idea to get a few things straight first. According to IDEO guidelines, we have considered timeline, the space for the intended work, the budget for the project, skills needed, tips that needs to be taken, and what will be produced for a successful design project.

So we have scheduled the work and divided it equally. Each one of us have laid out the motives, required resources and the deadlines of the work assigned to us. We have begin the work and have explored through a lot of possibilities during the process. We have learnt to make the best use of the available resources and had proceeded with the design process. We have

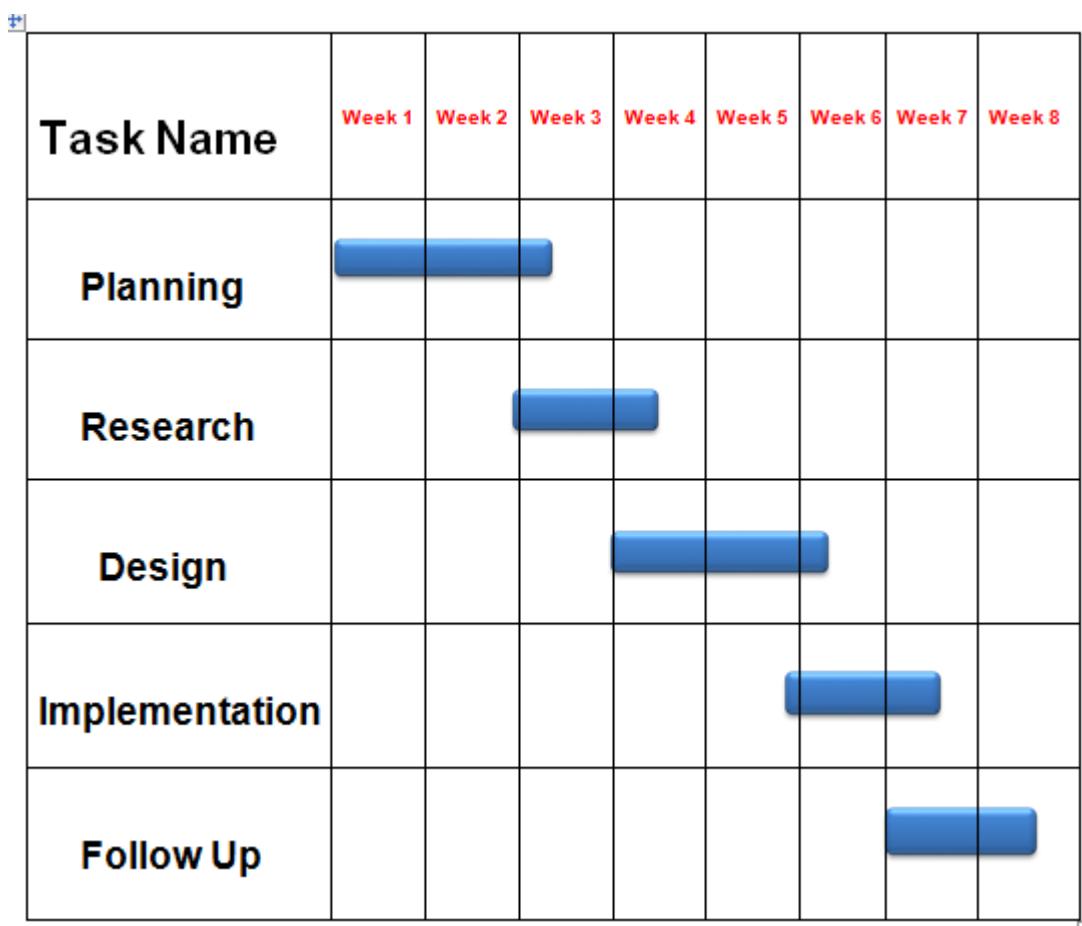
discussed it with the elders in the family, our faculty and the stakeholders who made the design process more easy.

During the current situation , we have discussed everything online through google meetings or zoom meetings. We have had presentations for every module of the project that we have completed and would be given review from the faculty and fellow students. We have also made a prototype of the project for a better view of the model in other's minds before we have implemented it. We have personally reached out to stakeholders and have considered their insights on the project.

We have proceeded through the research work and the need of the stakeholders and have decided to make it more handy and economical. We have decided it should also be portable. We have found a way to make the design with the things available at home and considering the benchmarks of the other products available in the market.

We have implemented our project and regularly followed up our customers for their review.

2.3 Gantt Chart



CHAPTER 3

COMMUNITY PARTNER RELATED PROCESS

3.1 Details of Community Partner

Our Community Partner is a potential customer:

Name :	Subba Raidu
Occupation :	Government Employee
Employee Age :	55 years
Address :	Aphb colony, By pass road, Machlipatnam,Krishna, Andhra Pradesh
Contact Number :	7395467092
Email ID :	subbaraidu05@gmail.com

In these challenging times, our customer wanted to keep his environment clean and hygienic. It was necessary for them to have an air purifier at their home and even at their workplaces. They wanted their product to be affordable and portable.

3.2 A Field Survey Form

Customer Information:

Customer Name

Subba	Raidu
-------	-------

First Name

Last Name

Address

Aphb colony

Street Address

By pass road

Street Address Line 2

Machlipatnam	Andhra Pradesh
--------------	----------------

City

State / Province

Krishna

India

Postal / Zip Code

Country

2/3

Contact Number

7395467092

E-mail

subbaraidu05@gmail.com

example@example.com

How long have you been using this product and why?

I have been using this product since 2 years. The product has helped in reducing air born diseases and also keeps our environment clean and neat.

Write your comments and suggestions about our products in comparison with other competitors:

Create your own automated PDFs with [JotForm PDF Editor](#)

This product is advisable for all levels of economies

Are you satisfied with our product performance? share your opinions:

Yes, fully satisfied with this product. It has improved air quality and reduce air pollution.

Tell us something about your experiences while using our product:

It was easy to use and was eco-friendly as materials used for this product are easily available.

Would you like to continue with our product? if No why:

Yes, of course. Keeping environment clean has always been our prior concern.

Would you like to continue with our product? if No why:

Yes, of course. Keeping environment clean has always been our prior concern.

What kind of changes would you like to see in our products so as to enhance your satisfaction level?

It would be advantageous if it covered large area of purification

Thank you for completing this survey!

Date

24th May

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 **JotForm** ²

Day Year
2021

Submit

3.3 Questioner with Community Partner Responses

1. How is our product helpful in your daily life?

Considering the present-day situation it is really helpful to maintain virus-free Environment. It seems to be handy and economical.

2. Are there any improvements that you would suggest?

- It would be advantageous if it covers large area for purification and can be located in public places.
- Inclusion of any requirement to extend the feature of design to remove air pollutants too.

3. Do you think our product is cost effective?

Yes, comparing the products in the market , it is serving our purpose considering a reasonable amount.

4. Do you think the product can prevent any kind of air borne diseases? Yes, as the product disinfects the surroundings whenever we use, say, regularly it provides an environment free from pathogens.

5. Do you have any complications using the product?

It is easy use and also the time required to disinfect the room is convenient and it is safe, doesn't need much monitoring.

6. What changed for you after using this product?

As mentioned earlier, we live in a healthy environment. It is very reliable, we don't have to worry about any viruses hitting us.

7. Would you recommend our product to family or friends?

Since, it is required to everyone, I'll see through that it can be useful to many including my family and friends.

3.4 List the Community Partner Specifications

It is very important to satisfy needs of the stakeholders. Through literature surveys on the products , some insights have been drawn. Some specifications are:

- Affordable and accessible,
- Convenient to use and portable,
- Less power and more efficiency
- Safe to use
- Lightweight
- Disinfect larger areas.

CHAPTER 4

PURCHASES AND DESIGN AND DEVELOPMENT OF PRODUCT

4.1 Purchasing Information

Description	Quantity	Unit Price	Cost
Air Extractor	1	₹ 1,000	₹ 1,000
Disk Valve	1	₹ 500	₹ 500
Paints	1	₹ 240	₹ 240
UV-C light	1	₹ 950	₹ 950
Mesh	1	₹ 90	₹ 90
Zippers	1	₹ 200	₹ 200
Ventilation Case	1	₹ 250	₹ 250
Electricals	1	₹ 150	₹ 150
Total			₹ 3,380

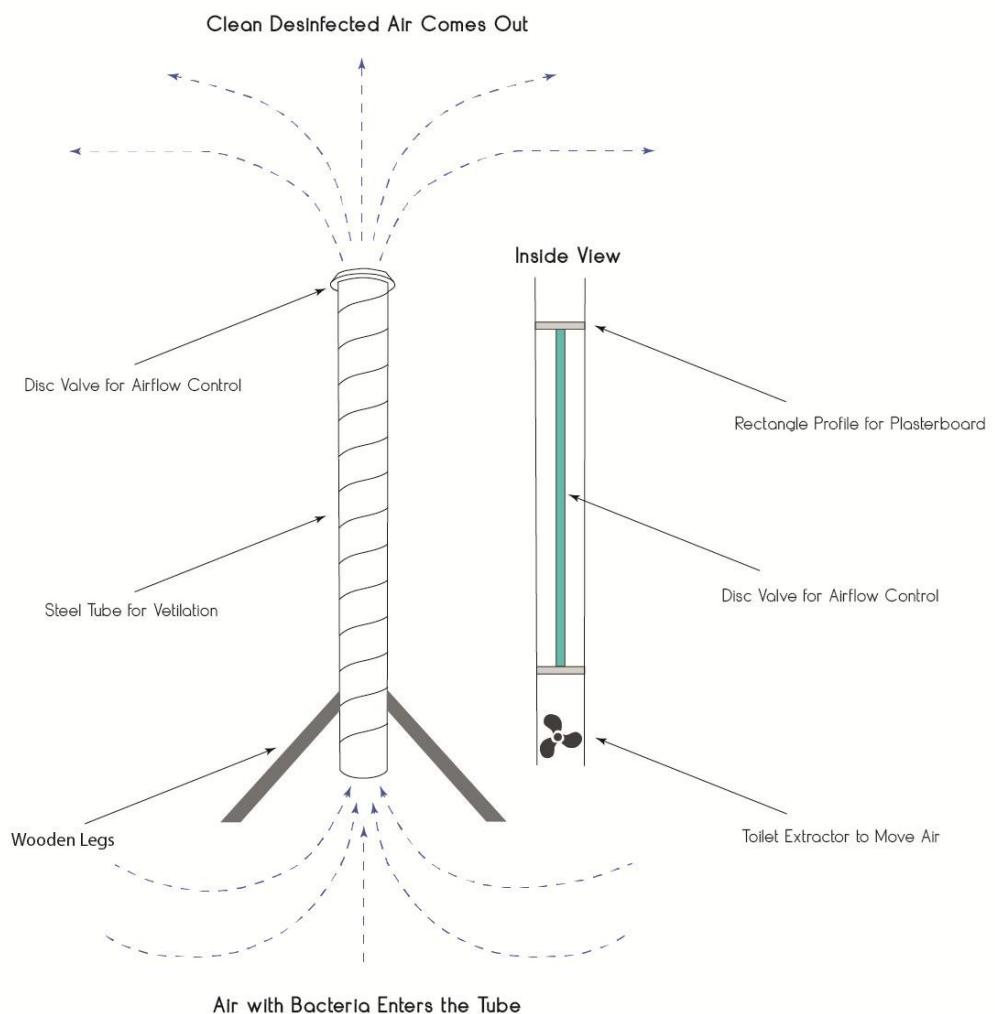
4.2 Design of Product

1. Specifications of Materials

- A. UV disinfection Tube
 - 11W, 240vAC power inlet
 - Wavelength : 254nm
 - Coverage : 30 sq. ft area in 1 hour
 - Dimensions : 10-inch
- B. Air Extractor
 - Voltage : 220-240V AC, 50HZ
 - Axis : AXIAL
 - Dimensions : 150mm
- C. Disk Valve

- To control the air flow
- Diameter : 6mm
- D. Ventilation tube
 - Dimensions : 50 /h
 - Shields from exposure of UV light
 - Internally reflects the Uv light, It is made up of Aluminium material
- E. Activated Charcoal
 - Medium operational expenses
 - Loss of material is less
 - Microspores are more and less mesoporous

2. Model of our product



Working of the model

When it is connected to electric power, air passes through the bottom and gets exposed to UV light and then an exhaust fan draws air upward to pass out into the atmosphere. As the air stream is exposed to the ultraviolet light. The genetic material of the microorganisms is destroyed or deactivated.

In the stage 2, Activated charcoal removes pollutant particles present in air, This process is called adsorption process. Purified air comes out for the top through a disk valve.

4.3 Development Process

4.3.1 Filter available to purify air

Air filters are devices that remove particles such as dirt and VOCs (volatile organic compounds) from the air, resulting in better air quality. So, we can see that there are many different types of filters available on the market, but they all have certain unique properties that assure good air quality, such as ionic, carbon, UV air filter, and HEPA filters, which are commonly used in the economic and commercial sectors.

4.3.1.1 Ionic Air filter

We call it an air ioniser or an ionic air filter. Because they act as a negative ion generator, they are distinct from the filter. They emit a negative ion charge that binds to the contaminants and falls to the ground owing to weight. Particles may not be in the air because of this filter, but they are still there in the room until vacuumed away.

4.3.1.2 HEPA filter

The name HEPA stands for high efficiency particulate air, and it refers to a specific type of filter that catches small particles such as dust, pollen, bacteria, and other particulate matter originating from external air pollution. Air cleaners that remove tiny

particles from the air are known as heap air cleaners. As a result, the air we breathe is cleaner and fresher. HEPA filters capture particles with a diameter of 0.3 microns or larger, and they can remove 99.97 percent of tiny particles.

4.3.1.3 Carbon air filter

It's been given a unique oxygen treatment to open up the pores in the carbon atoms. This technique increases the total surface area of the charcoal, allowing it to collect more airborne particles. Among the particles are odours and gas molecules. Odors and gases react with the charcoal in a carbon filter and attach to the surface. Essentially, this removes foul odours and chemical vapours from indoor air caused by things like paint, volatile organic compounds, and other contaminants. Carbon monoxide, nitrogen oxides, sulphur dioxide, lead, and particulate matter are some of the particles that carbon absorbs.

4.3.1.4 UV air filter

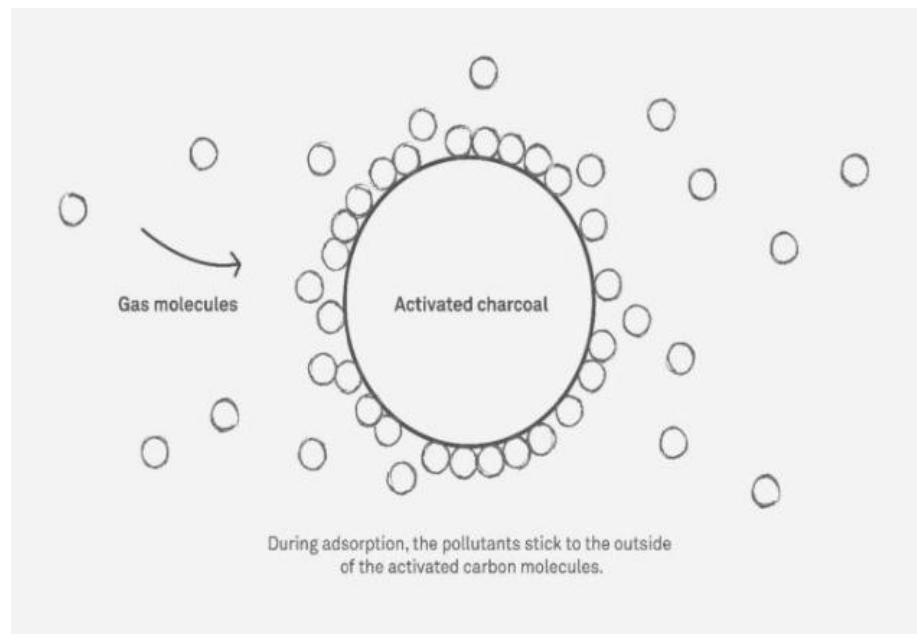
UV radiation has only one purpose: to eliminate germs and viruses in the air. The UV light shines on the germs and pathogens as the air travels through the air purifier, destroying their DNA structure. Those microorganisms are no longer harmful to your health after the air has been cleaned. These rays have a wavelength of 264nm.

4.3.2 Filters we are using

We developed the model of Air disinfection unit using a combination of UV light filter and carbon filter, which is commonly used in water for eliminating contaminants by the method of adsorption. Basically, we utilised fairly ordinary stuff to develop this model, which is readily cheap for all families.

4.3.3 Carbon filter working

Carbon air filters are the most commonly used channels for removing dangerous gases, which are removed by the carbon plate. Activated carbon, on the other hand, is commonly used to capture VOCs, which are emitted by many common household goods.



Trapping of gaseous pollutants by activated carbon

To begin, we must understand how carbon air filters reduce pollutants from the air through the process of adsorption, which is distinct from absorption. For example, in the process of absorption, water is soaked by the sponge, which means water is present inside the sponge, which means it becomes a portion of the absorbent that is not secured, and it merely fills inside the areas between the carbon air filters.

So, carbon air filters use the adsorption process to filter organic substances from the air. These gaseous pollutants fill up the area of activated carbon, and when the carbon becomes saturated, it can no longer trap pollutants.

4.4 Materials of our product



4.5 Final product



4.6 Comparison with Existing Models

EXISTING MODEL	OUR MODEL
Expensive	Affordable
Simple and Flexible Design	Simple and Flexible Design
Low running cost	Low running cost
Average Lifespan, not too low, not very high	Average Lifespan, not too low, not very high

Comparison of our model with existing models

4.7 Applications

We can use this filter at,

- Office cabin
- Living room
- Schools, colleges
- Hospital rooms

CHAPTER 5

DELIVERY TO COMMUNITY PARTNER, FEEDBACK AND REDESIGN

5.1 Delivery Details

1. Customer details:

Subba Raidu

APHB colony, Bypass road Machilipatnam, Krishna, Andhra Pradesh
+91 7395467092

2. Vendor details:

Private service

Moti nagar, Hyderabad , Telangana 500082
+91 6301673242

3. Product details:

Product name : Air sanitation model

Quantity : 1

Price : 5000 INR

4. Mode of delivery:

A train under proper assistance.

5. Date of delivery:

2-3 working days after shipping.

6. Payment details:

Cash on delivery(COD)

Google pay or phone pay : +91 6301673242

5.2 Feedback on delivered product

The feedback was collected after the product delivered.

The feedback we got is quiet positive and the customer stated that the model was designed as expected ,the parts were also comfortable to function and were able to complete the task, as the weight of the model is not so heavy ,which is perfect and even the feedback was collected from few of the neighbourhood households the review we got was quiet good and they tend to give the rating like 4-4.5 on a scale of 5 which is pretty good.

Also got the suggestions to make the model attractive with paint and polish, so that can be a plus point for us for better selling of the product.

5.3 Redesign and Analysis

A mean colony forming units per metres cubed count from the entire pharmacy revealed an overall significant decrease in both fungal and bacteria viable air particles by 78% and 62% respectively.



CHAPTER 6

BUSINESS MODEL

In consonance with The Business Research Company's research report on the air purifiers market, the growing awareness among consumers regarding air purification in the wake of COVID-19 is an opportunity for air purifier retailers to scale up their sales. Some companies are increasing the production of air quality systems with the addition of different technologies such as High-Efficiency Particulate Air (HEPA) filters, activated carbon purifiers.

The air purifier market is segmented by technology into HEPA filter, activated carbon, and others. It is also segmented by type into dust collectors, fume & smoke collectors, and others. By end-user, the market is segmented into residential, and commercial.

Air disinfectant mission is to provide cleaner air to customers at affordable prices, so that even the not so rich households can provide a healthy atmosphere to their families.

1. Some of the Roles for Marketing

- Oversee external research and coordinate all the internal sources of information to retain the organizations' best customers and attract new ones
- Analyze the volumes of transactional data generated by customer purchases.
- Understand, prioritise, and reaches out to new partners, and business opportunities
- Understand development opportunities; follows up on development leads and contacts
- Being In charge for supervising implementation, advocate for the customer's needs, and communicate with clients
- Create, executes and evaluates new plans for expanding increase sales
- Keep all customer contact and information
- Represents the company in strategic meetings
- Aid to increase sales and growth for the business
- Quickly attends to customers in a friendly and professional manner
- Explain all available products services to customers effectively.

2. Some of the Advertising Strategies

- **Personal Selling:** Through one-to-one interaction with potential customers we will compare our product with competitive products to show the advantage of having our product over the leading product.
- **Print advertising** – Our print advertising program will include advertisements in magazines.
- **Internet** – We will establish a presence on the Internet by developing a dynamic website. Make it easy for the customer to order new filters by providing our website address selling the filters online or providing our phone numbers.
- **Social Media Platforms** – We also plan to leverage social media platforms like Facebook , Twitter , Instagram.

CHAPTER 7

CONCLUSIONS

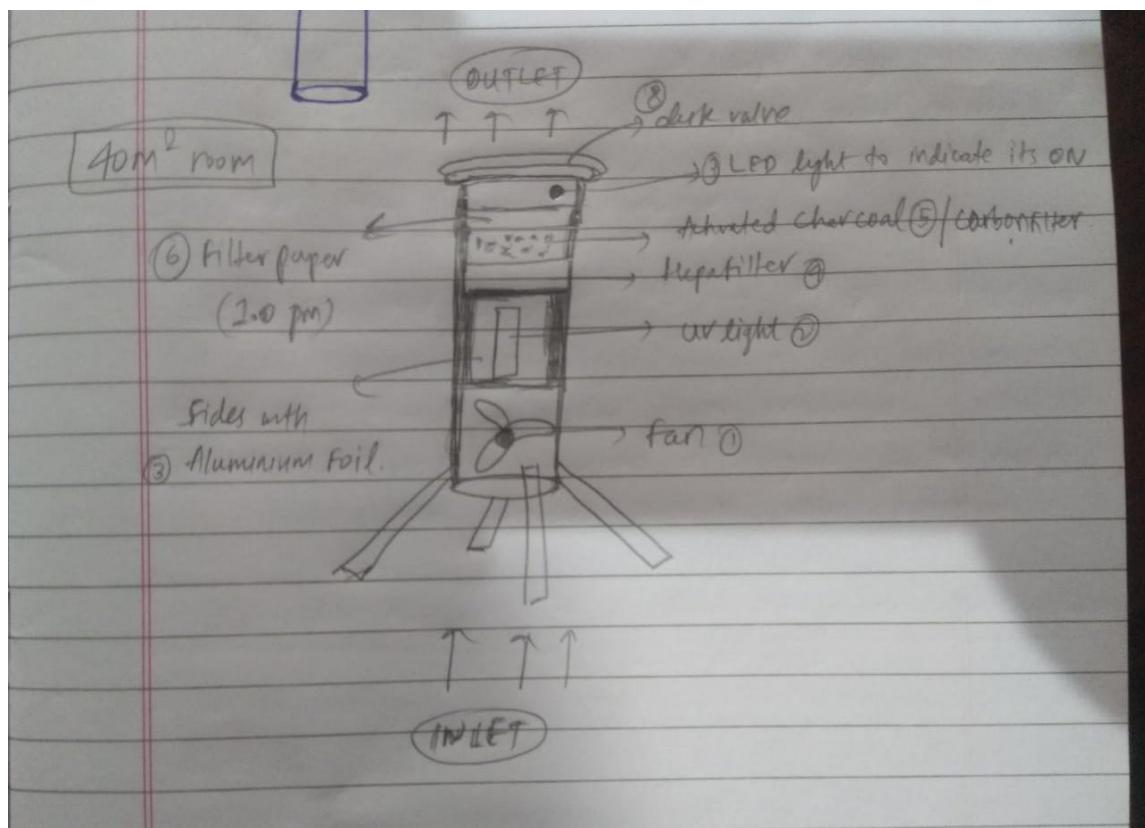
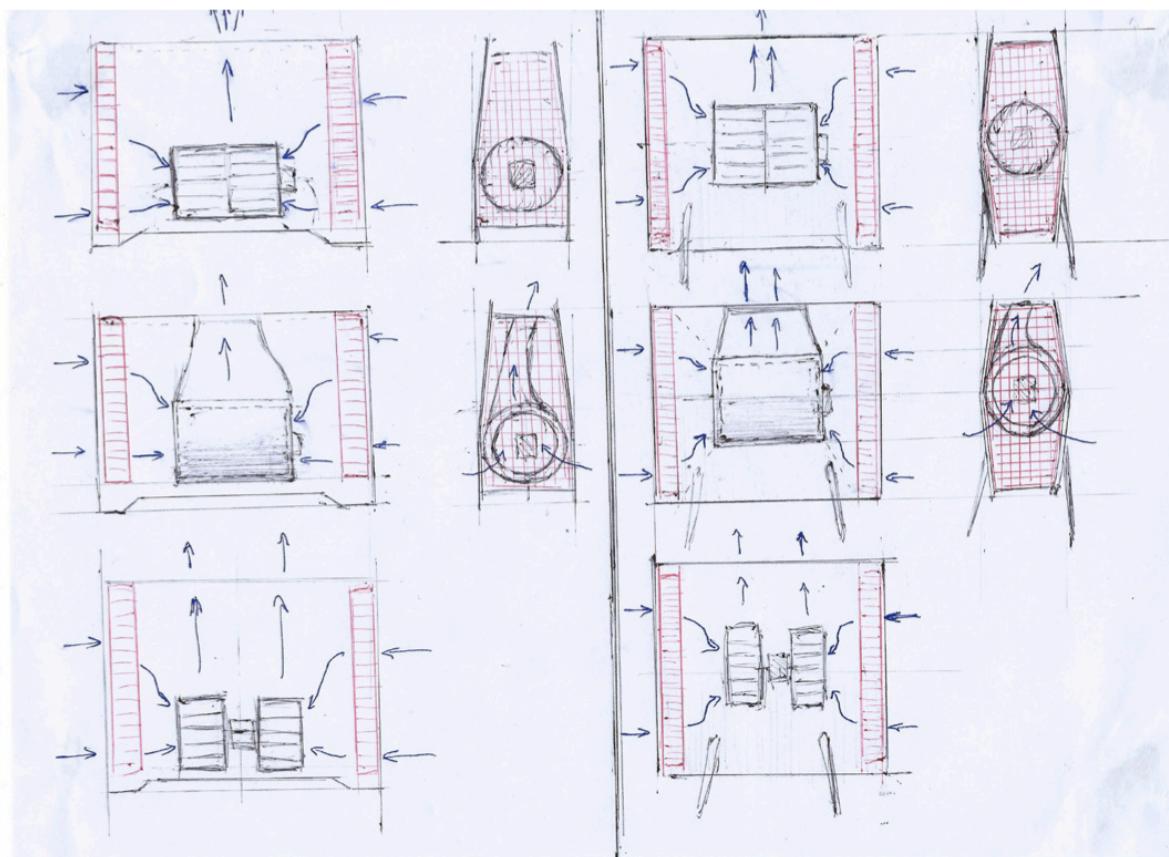
Despite the rapid rise in environmental pollutants, the causal pathways leading to adverse health effects is often complex and poorly understood. Children, the elderly, and women are most vulnerable to potential indoor air pollution health effects because they spend more time in the home environment.

There are many sources of indoor air pollution. Air pollution inside homes consists of a complex mixture of agents penetrating from ambient (outdoor) air and agents generated by indoor sources. Indoor pollutants can vary in their potential health effects and intensity, as well as in their distribution across geographic areas, cultural backgrounds, and socioeconomic status. Exposure to indoor air pollutants can cause health effects ranging from sneezing and coughing to exacerbation of chronic respiratory disorders such as asthma and outcomes such as cardiovascular disease and even cancer.

Reduction in particulate matter and allergens is achieved successfully through efficient air filters. The British Guideline on Asthma Management from the British Thoracic Society recommends use of air filters for removal of pet and other allergens.

Technologically advanced air filter systems are now available which efficiently remove particulate matter, resulting in significant health benefits to patients of asthma and cardiovascular disease. Cost-benefit studies are currently not available however, such studies are required in countries like India for assessing the utility of universal application of these devices.

BRAINSTORMING



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