Design and Concoction of Fragrance Machine.

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Abstract: Why machines required? The system is design which will be useful for the close room where different odor is present due to occupancy of human being. This system will suck the odor the room and the room will be filled with conditioned air with different fragrance.

As the room is close and different odors are present then the suphocation may occur due to lack of air circulation. As the air circulation rate is less this will create uncomforted condition for human being for comfort condition of human the air circulation and quality of air is important on and model will satisfy the condition of circulation and quality of air.

Perfume means a substance, fluid which prepare for diffusing or imparting an agreeable or attractive smell specially a fluid containing fragrant natural oils extracted from Practically there are limited applications of perfume. for increasing fragrance area and for commercial use limited machines are available in market so for better performance fragrance machine is used.

I. INTRODUCTION

As Air is the general name for the mixture of gases that makes up the Earth's atmosphere. On the Earth, this gas is primarily nitrogen (78 percent), with oxygen (21 percent), water vapor (variable), argon (0.9 percent), carbon dioxide (0.04 percent), and many trace gases . There is no air in space People need to breathe, and so do lots of other animals and plants. Breathing is part of a process called respiration. During respiration, a living thing takes in oxygen from the air and gives out carbon dioxide. This process gives animals and plants the energy to eat, grow, and live life.

Many gases such as nitrogen, oxygen a present in air in different proportions. In addition, it also contains gases such as hydrogen, carbon dioxide, carbon monoxide. Air is naturally clean and safe for human and animals, but due to industrialization pollution of the air is increasing which is unsafe for breathing. The ambient fragrance in the auditorium is one controllable factor of the experience puzzle that includes, but is not limited to décor, lighting, music and other ambient sounds,

comfort of the seating, quality of the service, perception of cleanliness, and ease of locating important destinations, such as restrooms, cashiers, or exits. Fragrances have been used for thousands of years to enhance specific experiences and influence behavior. The targeted use of specific fragrances in auditorium may be shown to affect mood, enhance the experience, and influence the actions of auditorium guests in a similar manner. The purpose of this study is to examine the effects of fragrances both synthetic and from natural sources on auditorium patrons.

I.1 Problem statement:

1. In hospitality industry like hotels, restaurant, bar and auditorium. There is no provision for removing sweat, smoke & another type of smell (alcohol, food).

2. In gym there is no provision for sweat, dirt removal to overcome this issue we are creating fragrance machine with air quality as an added advantage.

I.2 Objectives

1.To provide human comfort.
2.To remove undesirable odor, dust and dirt.
3.To reduce manpower, efforts and overall cost.

I.3 Methodology

1. Understanding the problem in proper manner

2. Study of traditional fragrance conditioning system

3. Assuming design data of fragrance machine

4. Selection of auditorium and calculate CFM

5.   Selection of various components:

- Motor

- Wooden in Frustum shape

- Perfume

- Air Filter

- G.I. Sheet Metal

- Cooling ratchet

- Duct and Duct size

- Dimer stat

- Humidity Sensor DHT11

- Aurdinouno circuit

- Temperature sensor LM35

6.Design and Calculation of Duct

7.Design and 3-D Modeling of Fragrance Machine

8..Calculate reading of temperature and Humidity

Compare reading and satisfy condition

II. LITERATURE REVIEW
1 Paper 1

Paper Name: MODIFIED EXHAUST FAN (IJSRET-May 2014)

Author. Jahangir Alam, Bikram Dey, Ghazi Abu Taher

     This author was studied,

1. Some feature like absorbing dust and fume with activated carbon layer has no specific rate at which it will absorb. This feature can be developed further.
2. The increasing heat transfer rate and removing dust and fume from the working space by using our modified exhaust fan.

2 Paper 2

Paper Name: PHYSICAL AND CHEMICAL PROPERTIES OF CONTEMPORARY PINE WOOD (PINUS SYLVESTRIS L.) IN CONDITIONS OF A WET ARCHAEOLOGICAL SITE IN BISKUPIN (FOLIA FORESTALIA POLONICA-January 2007)
Author: Magdalena Zebrowski, Leszek Babiński, JulittaGajewska, Bogusława Waliszewska, Włodzimierz Prądzyński
This author was studied,
1. The comparison of physical properties, mass decrements and chemical composition revealed small differences of the examined characteristics of pinewood
2. Various types of physical and chemical properties of pine wood.

3 Paper 3

Paper Name: COMPARATIVE STUDY OF PINE WOOD AND PINE BARK (PINUS SILVESTRIS L.) DIOXAN

LIGNINS (CELLULOSE CHEMISTRY AND TECHNOLOGY-January 1988)

Author: Rastislave solar, Frantisek kacik

This author was studied,

1. Detail information about physico-chemical and chemical properties of and the comparison between pine bark and wood.
2. How pine wood is efficient than pine bark for the various application like soaking oil etc.

4 Paper 4

Paper Name: MECHANICAL PROPERTIES OF PINEWOOD (*PINUS SYLVESTRIS*) SWOLLEN IN ORGANIC LIQUIDS (PROC. ESTONIAN ACAD. SCI. ENG-Februray 2006)

Author: PilleMeiera, Eve Stööra, Titans' and UrveKallavus

This author was studied,

1. Pine sapwood, swollen in aqueous solutions of ethanol, has better elastic properties compared to the wood, swollen in other liquids used in this study.
2. The relationship between the swelling degree and the strength properties of wood, swollen in different liquids, are needed.

5 Paper 5

Paper Name: AIR FILTRATION STUDY TO IMPROVE INDOOR AIR QUALITY- PROPOSED STUDY (SCIENTIFIC

CONFERENCE ON OCCUPATIONAL SAFETY AND HEALTH-October 2014)

Author: M.D Amir Abdullah, A.M Leman and A.H Abdullah

This author was studied,

Different types of filtration technique, types of filter and air contaminant. From the data collected from the target area, this study then identified the source of the pollutant, thus improve the indoor air quality of the spaces. This study also expected to identifies material used for the filter in MVAC system.

III. DESIGN & CALCULATION

1. For designing the product we are consider college seminar hall as workplace.

2. Calculations are as follows:

3. breadth:10.15m=33.30foot

4. height:3.2m=10.49foot

5. length:14.50m=47.57 foot

     volume of room in foot: l*b*h

       i. =33.30*10.49*47.57

       ii. =16631.6782 foot

- **Calculate CFM and Selecting the Motor**

Area=l*b

     =47.57*33.30=1584.164 foot

Formula for CFM(cubic feet per minute):

CFM= volume*air changes per hour

         60

    =16631.67*12 (from air changes per hour chart)

         60

    CFM=3326

To satisfy CFM condition we used exhaust fan which has CFM 3600

Typical Air Changes Per Hour Table

Residential	
Basements	3-4
Bedrooms	5-6
Bathrooms	6-7
Family Living Rooms	6-8
Kitchens	7-8
Laundry	8-9
Light Commercial	
Offices	
Business Offices	6-8
Lunch Break Rooms	7-8
Conference Rooms	8-12
Medical Procedure Offices	9-10
Copy Rooms	10-12
Main Computer Rooms	10-14
Smoking Area	13-15
Restaurants	
Dining Area	8-10
Food Staging	10-12
Kitchens	14-18
Bars	15-20
Public Buildings	
Hallways	6-8
Retail Stores	6-10
Foyers	8-10
Churches	8-12
Restrooms	10-12
Auditoriums	12-14
Smoking Rooms	15-20

Design selection and calculation of duct

Types of duct
1. Supply air duct
2. Return air duct
3. Fresh air duct
4. Exhaust air duct

Note: For this project we select Fresh air duct.

Types of duct shape
1. Rectangular
2. Circular
3. Square
4. Spiral

Selection of Head Friction Loss
1. For residence 0.04 to 0.07 (In inches water/100Feet)
2. For commercial 0.07 to 0.1 (In inches water/100Feet)
3. For industrial 0.1 to 0.16 (In inches water/100Feet)

Note: For this project we select commercial head friction loss.
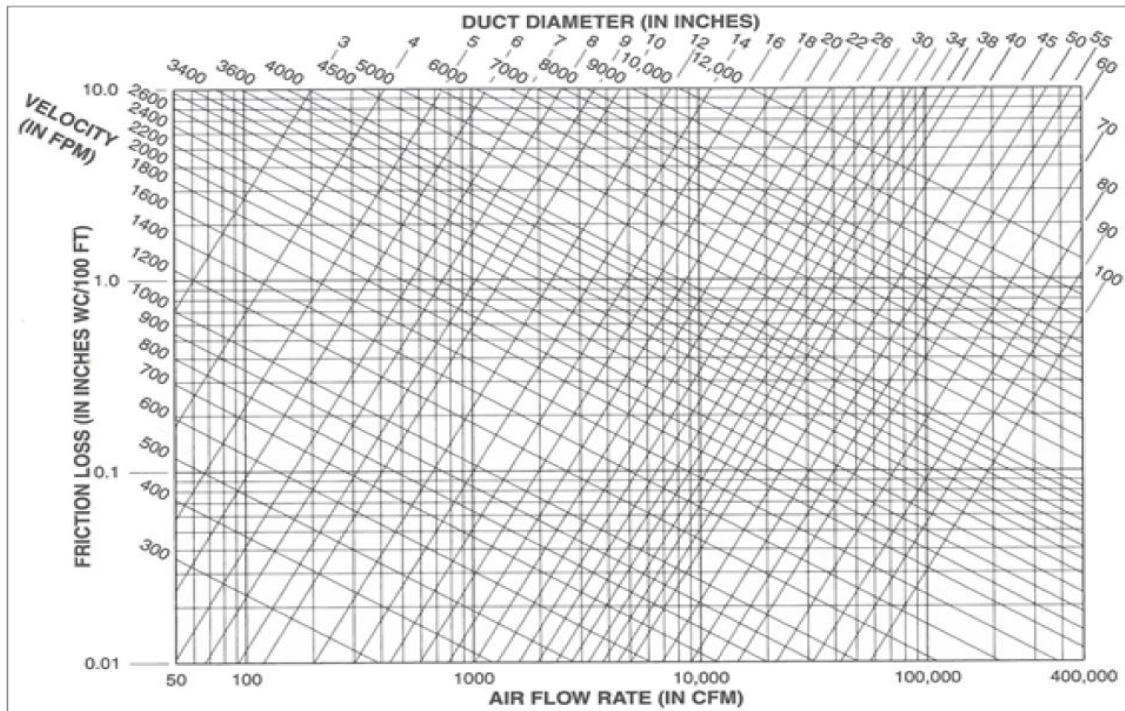
Types of Duct design method
1. Equal friction method

2. Velocity reduction method

3. Static region method

Note: For this project we select Equal friction method

Friction chart for duct diameter

Equal Friction Round Duct Sizing Chart

Air flow rate =3600 CFM
Friction loss=0.1 INCH/100FEET
From above chart calculated duct diameter and velocity of duct.
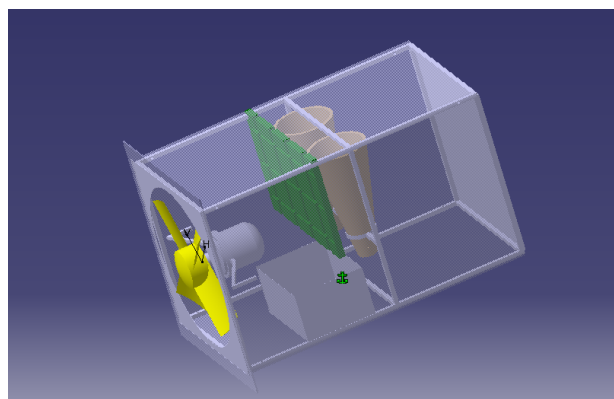Duct diameter =20INCH=508MM
Velocity=1200FPM
Length of duct=90/360*(2*3.14*r)
                =90/360*(2*3.14*10)
                 =15.707Inch=400mm
From Circular Equivalent Rectangular Duct Chart calculate width and height of duct.
Width=20inch=508mm ,Height=17inch=431.8mm

IV. CONSTRUCTION AND WORKING

Experimental Set of Fragrance Machine

1. A thin sheet of metal tube accommodates the assembly consist of inlet and outlet opening.
2. whenever the air suck from the atmosphere but atmosphere air has the foreign materials like dust particle that cause the blockage of the system and also reduces effectiveness of performance.
3. To avoid the above majors, we provide air filter at inlet of the system that efficient air performance.
4. The exhaust fan is used to create flow pressure are lower the atmospheric pressure which create the vacuum at inlet of the system.
5. Because of the exhaust fan pressure difference can obtain due to that air get sucked.
6. The main component of the system is placed in between the exhaust fan and filters.
7. There is wooden structure as a bucket but shape is as the pyramid.
8. In the wooden pyramidal the perfume is store with different fragrance as we required.
9. When the air passes through that wooden pyramidal some amount of perfume adhere to air and flow across the exhaust fan and entering the auditorium.
10. The mixture of air perfume droplet is only depending on the wooden pyramidal and going to the cooling ratchet in which the air is cooled and passing towards the room.
11. So we selected pine wood as wooden pyramidal which soaks maximum amount of perfume and releases whenever it's come in contact with flow of air that flow generated by using exhaust fan.

IV. CONCLUSION

This project gives efficient fragrance machine to society. In this project the fragrance machine is assemblage different components of mechanical and electrical branch such as DC motor, humidity sensors, Arduino Circuit, etc., so machine is give fresh air with natural smell and chilling effect in Auditorium, Bar.
To provide Human comfort to the people.
The machine is made in minimum cost as comparative to another machine

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