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Green Street Light is a Qualitative Solution to Control of Air Pollution

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Abstract - The term "Air Pollution" is used to describe substances that are artificially introduced in to the air in the form of gases and airborne particles which, in excess, are harmful to human health, buildings and ecosystems. Air pollution is mainly caused by combustion of fossil fuel, processing of materials and decomposition of organic matters. The main sources of air pollution is from industrial activities, transport sector, house hold fuel burning, and other commercial activities. An effort has been made in the present project to describe Pathway straight light air pollution control with main emphasis on design of the Air Pollution Control Systems. The Planning, Management and Control of Air Pollution need to be addressed simultaneously to achieve the reduction in global warming. The present project signifies the importance and use of solar straight light an integrated approach needs to be induced into the system which include control of air pollution at road side straight light. An effort has been made in the present project to briefly describe Pathway and road signal control system with main emphasis on design of the Air Pollution Control Systems, particularly Filters with suction fan arrangements are incorporated with straight light to control dust emissions and Wet Scrubbers to control gaseous emissions by way of road traffic.

***Key Words*:** Air pollution control, suspended particles, dust collection, solar PV system, straight light.

1.INTRODUCTION

Due to rapid urbanization, industrialization and motorization, a large number of cities are affected by heavy air pollution. In order to explore progress, remaining challenges, and sustainability of air pollution control in the city a mixed method analysis was undertaken to control air pollutions. The quantitative analysis comprised an overview of air quality management in the such region. However, improvements vary across the region and for different pollutants control. Although implementation has been decisive and was at least in parts effectively enforced, significant challenges remained with regard to industrial and traffic emission control, and national air quality limits continued to be significantly exceeded and competing development interests remained mainly unsolved. There were also concerns about the sustainability of the current air pollution control measures especially for industries due to the top-down enforcement, and the associated large burden of social cost including unemployment and social inequity resulting industrial restructuring. Better mechanisms for ensuring cross-sectoral coordination and for improved central-local government communication were suggested. Further suggestions were provided to improve the conceptual design and effective implementation of respective air pollution control strategies in Green straight light is qualitative solutions to control air pollution. Our study highlights some of the major hurdles that need to be addressed to succeed with a comprehensive air pollution control management for the urban areas.

2. Literature Review

Dr. Akshey Bhargava, done the work on, Design of Cyclone by Stairmand method for the Control of Particulate Matter, according to his work, Air pollution is assuming significant and even alarming dimensions particularly in Urban and Industrial areas and as such need to be controlled at the source of air pollution. Industrial air pollution is generally controlled by installing Electrostatic Precipitators, Bag filters, Multi cones and Cyclones, etc for particulate matters control and wet Scrubbers of different types, adsorption, Oxidation and reduction techniques and so on so forth for the control of gaseous air pollution. Pollution due to Suspended Particulate Matter (SPM) is very common and caused particularly on account of Vehicular and Industrial emissions. These Particulate Matters are classified as settleable, suspended and respirable in nature. An effort has been made in the present research paper to explain and design the cyclone and Multi cone to control dust emissions particularly of coarser nature from a typical cement grinding unit by using Stairmand design model. The design of Cyclone/ Multi cone has resulted into quick outputs in respect of variable inputs. It thus has advantages of optimizing various inputs parameters to achieve desired efficiencies and other parameters related thereto. In case of desired power requirements, cyclone can be designed to optimized the outputs through this design, similarly the diameter of cyclone can be optimized to give desired efficiency with the availabilities of other input parameters, thus provides ready to use mechanism through which cyclone can be design in a more compatible manner. [1]

Remediation of highly polluted industrial plants inside our towns, especially for the conventionally untreated emissions, is of extreme benefit for the cities air quality. The identification and promotion of alternative technological solutions able to minimize the pollutants exposures in specific industrial workplaces is required. everywhere in mega cities where

industrial plants are disseminated in the urban tissue representing harmful diffuse emission sources In this study we have reported the effect of sustainable pollution "absorbers", based on a three stage wet scrubber technology, inside two industrial workplaces, implanted in urban area, characterized by the presence of toxic particulate matter and persistent organic volatile compounds Our results suggest that sustainable and simple industrial remediation strategies could contribute significantly to improve workplace air quality and limit the industrial environmental impact on urban area for the benefit of both workers and the urban population at large.[2]

3. Problem Statement

The main city of India, mostly has been recognized as the most polluted city in the world. World Health Organization (WHO) has reported this as per their findings in 2014. It is indeed an alarming issue for the health of our future generations in India. We are aware of the ill effects of environmental pollutants and toxicants on health status of human as well as other living organisms and the environment The most vulnerable to the toxic effects of the pollutants are children and old people. Some significant measures should be taken and some strict laws should be made to prevent environmental pollutions in the major cities of India. Deadly diseases like cancer and asthma etc. are increasing in Indian responsible for such increasing incidences COLLEGE NAME 2 Green Straight Light Is Qualitative Solutions to Control Air Pollution. of diseases. To overcome this problem & to control the air pollution on side of city road we will trying to make a system.

4. Objective

1) The project deals with the study, design & fabrication of a Green straight light is qualitative solutions to control air pollution by using solar energy.
2) The objective of this project is to enhance the use of non-conventional energy & solar panel for control air pollution.
3) Global energy crisis is getting severe day by day along with pollution problem using fuel in Vehicle. This objective is situation use of solar energy for the survival and development of humans to control air pollution.

5. Methodology

We have proposed a methodology to solve the problems. Our methodology is divided in different parts, under different titles. Sequence of proposed methodology is as follows –

- Problem Definitions
- Basic Information & literature survey
- Design of Components
- Selection of material & standard parts.
- Manufacturing process & testing.
- Cost Estimation & Report writing.

6. List of Components

1. Solar panels
2. Solar Charger Unit
3. Storage Battery
4. DC fan
5. Fasteners
6. Supporting frame pipe
7. Pipe Joints
8. Street Light
9. Screens
10. DC Motor
11. Bearings
12. Spur Gears
13. Shaft
14. Control switch

7. BLOCK DIAGRAM

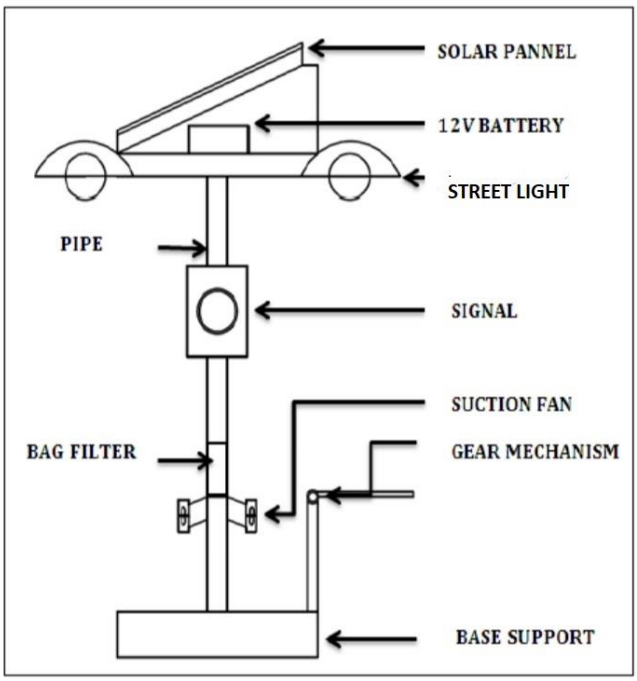

Fig. Concept of Green Street Light

WORKING

Global energy crisis is getting severe day by day along with pollution problem using fuel in Vehicle. This objective is situation use of solar energy for the control air pollution. Green straight light is best solutions to control air pollution & helpful device to reduce global warming which absorb & separate suspended dust & fumes form exhaust emissions. The project signifies the importance and use of solar straight light to be having suction fan into the system which control of air pollution by absorbing all suspended particles & exhaust fumes from system at roadside straight light the filters trap all suspended particles and release only fresh air to atmosphere from top side of the system. An effort has been made in the present project to use at toal booth barrier gate, Pathway and road signal control system with main emphasis on design of the Air Pollution Control Systems, particularly Filters with suction fan arrangements are incorporated with straight light to control dust emissions and Scrubbers to control gaseous emissions by way of road traffic. The project deals with the study, design & fabrication of a Green straight light is qualitative solutions to control air pollution by using solar energy.

8. CONCLUSIONS

While concluding this report, we feel quite fulfil in having completed the project assignment well on time, we had enormous practical experience on fulfilment of the manufacturing schedules of the working project model. We are therefore, happy to state that the in calculation of mechanical aptitude proved to be a very useful purpose. Although the design criterions imposed challenging problems which, however were overcome by us due to availability of good reference books. The selection of choice raw materials helped us in machining of the various components to very close tolerance and thereby minimizing the level of balancing problem. Needless to emphasis here that we had lift no stone unturned in our potential efforts during machining, fabrication, and assembly work of the project model to our entire satisfaction.

9. FUTIURE SCOPE

The future scope of the project is top concentration of our green straight light design is the cost and operational ease in case of machining of this project. This system is thus designed to reduce the cost of electricity in future using solar energy. In the future development of system, we utilize the past data and techniques. In this way the design of system is safe & environment friendly. Such green straight light systems will help in future to a great extent in improving the use of green energy and increase profitability of use of solar system. A new type of green straight light system is fabricated which is different from other system and will work on less energy which is reliable in operation using solar energy. Such systems are of much importance in developing countries, as almost all Asian countries are pollution control, facing electricity and power scarcity. Therefore, there is the need to develop a locally, fabricated machine & Equipments in future more reliable green straight light.

REFERENCES

[1] Dr. Akshey Bhargava, Design of Cyclone by Stairmad method for the Control of Particulate Matter, International Journal of Engineering Science and Computing, March 2016, Volume 6 Issue No. 3, pp. 2953-2955.

[2] Alessandro Avveduto, Cesare Dari Salisburgo, Lorenzo Pace, Gabriele Curci, Alessio Monaco, Marina De Giovanni, Franco Giammaria, Giuseppe Spanto, Paolo Tripodi, Analysis of a wet scrubber network in the air remediation of Industrial workplaces: benefit for the city air quality, publication at: Research gate, Conference Paper · May 2015,pp.1-12.

[3] Bashir Ahmed Danzomo, Momoh-Jimoh E. Salami, Sani Jibrin, Md. R. Khan, and Iskandar M. Nor, Performance Evaluation Of Wet Scrubber System For Industrial Air Pollution Control, ARPN Journal of Engineering and Applied Sciences, VOL. 7, NO. 12, DECEMBER 2012,pp. 1669-1677.

[4] K.Seevakan, K. Sathiyamurthy, R. Suganya, Air Pollution Control-Electrostatic Precipitator, International Journal of Innovative Technology and Exploring Engineering (IJITEE) ISSN: 2278-3075, Volume-8, Issue-9S3, July 2019,pp.792-794.

[5] Dr. Akshey Bhargava, Design of Bag Filter for the Control of Dust Emissionsfor a Cement Plant, International Journal of Scientific Development and Research (IJSDR) March 2016 IJSDR | Volume 1, Issue 3,pp. 249-251.

[6] Dipti C Jagtap, Air Pollution Controller-Fabric Filter, International Research Journal of Engineering and Technology (IRJET), Volume: 05 Issue: 02 | Feb2018,pp.1830-1833.

[7] G. RajKumar, C. Ganesa Moorthy , S. Sekar , New Design for Charging Section of Electrostatic Precipitators Using Thermocouple Principle for Air Pollution Control, Int. J. of Environmental Pollution & Environmental Modelling, Vol. 1(4): (2018),pp. 116-120. COLLEGE NAME 48 Green Straight Light Is Qualitative Solutions to Control Air Pollution.

[8] Xiaojing Liu, Yicheng Zhang, Qiangyun Wu, Mingfeng Zhang, Fan Liu & Yuanchang Guo, Study on the key structure parameters of a gravity settling chamber based on a flow field simulation, Engineering Applications of Computational Fluid Mechanics, 2019, VOL. 13, NO. 1, pp.377–395.

[9] R.C. Bhattacharjee, Optimal design of a settling chamber - an air pollution control device, Transactions on Ecology and the Environment vol. 66, 2003 WIT Press, www.witpress.com, ISSN 1743-3541, pp.531-540.

[10] Dr. Akshey Bhargava, Design of Bag Filter for the Control of Dust Emissionsfor a Cement Plant, International Journal of Scientific Development and Research (IJSDR), March 2016 IJSDR | Volume 1, Issue 3, pp.249-251.