



DESIGN AND DEVELOPING A A POWERFUL, MANUALLY OPERATED, POWERLESS VACUUM CLEANER FOR LARGE FLOORS

¹R Himendra, ²B. Sairam Goud, ³N.Jyothi, ⁴Kasula Vamshi

^{1, 2, 3}Assistant Professor, ⁴UG Student, ^{1, 2, 3, 4}Department of Mechanical Engineering, Brilliant Institute of Engineering and Technology, Hyderabad, India.

ABSTRACT

This project aims to clean the floors of universities, hospitals, theatres, shopping malls, and workshops. Developing and implementing a cleaning technique for floors with wet and dry surfaces is the aim of this project. Both dry and damp floors may be thoroughly cleaned with it. Although keeping clean floors is still important for our health in the current world despite the rising significance of interior design, this floor cleaning equipment makes cleaning quicker and simpler. This Endeavour therefore greatly benefits our daily life. This gadget is so easy to make and operate that anyone can use it. This floor cleaning tool comes with a moist cotton mop, swiping brushes, wipers, and vacuum cleaners to speed up the cleaning process. The overall cost of this machine is also cheap. Such type of machines is widely used for this purpose but they are working under different principles and the cost is very high. In recent years, floor cleaning machines are getting more popular for cleaning large floor area in minimum time. However in India, which is a developing country requires large type of such machines to satisfy the cleaning needs.

KEY WORDS: Floor Cleaning Machine, Vacuum Cleaner, Wiper

1: INTRODUCTION

Every generation has to clean. In general, institutions, enterprises, and hospitals have more users, therefore frequent floor cleaning is required. Several cleaning techniques are used on the various surface types. The causes of floor cleaning are.

- 1) Slipping on the flooring might result in unintentional accidents.
- 2) To decorate the ground.
3. The removal of obstructions and debris is required.
- 4) Allergens and dust must be removed.
- 5) It's better to avoid surface abrasion.
- 6) To maintain environmental sanity (kitchens).
- 7) Maintaining the best possible traction is necessary to prevent slippage.

The front two brushes scrape any dust or wetness that may be on the floor. The vacuum cleaner collects this water and dust and the detergent water is sprayed on the floor the mope present in the middle section of the

Page | 588

chassis perform rotary motion on the floor which cleans the dirt or dust. The remaining water on the floor is wipe by the wiper present in end of the cleaning machine.

2: OBJECTIVES OF PRESENT WORK

1. Objective of this project is to make manually operated floor cleaning machine.
2. Reduce the overall cost.
3. Reduce the air and noise pollution.
4. To increase the effectiveness of floor cleaning.

3: MATERIALS AND METHODS

This part portrays the materials required, manufacture technique and the exploratory systems pursued for their portrayal. It displays the subtleties of the portrayal and tests which the composite examples are exposed to crude materials utilized in the present research work are

- Wheels
- Frame
- Collector Bin
- Sprockets
- Chain
- Handle
- Scrubber
- Supporting Frame
- Mounts And Joints
- Screws And Bolts
- Shaft

3.1 .Fabrication techniques and assembled mode

Fabrication process is carried out by using following operation as given below.

Welding, , drilling and cutting these process are performed as shown in the following figures



Fig.1.Welding



Fig.2.Drilling

The manual operating floor cleaning machine uses two separate rods, in this one is connected at the front of the machine and another one is connected at the back of the machine. The rod connected which is below having one dry mat cloth which having a function to clean the dust, and sweeps dust.

Another one back congaing a wet cloth which function a to clean floor at a maximum extent length, here we cover about 5 foot length having maximum area of cleaning.

When coming to the function of a floor cleaning, when manually move the machine with the help of hand, machine starts moving when moving starts front and back having a cleaning rods it starts moving in forward direction first rod work in sweeping a dust on a floor and back rod work to clean the floor with wet cloth it covers a maximum area of cleaning.

CONCLUSION

The manually operated, ecologically friendly floor cleaner has been successfully created. In order to save money, time, and labor, this project employs a manually operated, ecologically friendly road cleaner to clean the roads. It is the perfect substitute for an automatic road cleaning machine during a power outage. It is found that the machinery used to clear roads at the moment requires little human labor. Shoulder issues may arise from the repetitive sweeping necessary in hand cleaning. The manually operated road cleaning machine is an alternate strategy for avoiding such problems. It works really well in terms of the area covered. Utilization is highly economical. The manually operated eco-friendly road and floor cleaner can work very efficiently with respect to covering area, time and cost of road cleaning process compared with the existing machineries. Also it is economical. It was seen while testing of machine, that the cleaning is less effective where the road seems to be very rough and damaged. It can provide job to the uneducated person who is in need for such jobs as human energy is needed to drive the machine. Maintenance of machine is less and it is easy to control and clean it having health benefits and it mainly protects environment pollution.

REFERENCES

- 1) Mohsen Azadbakht, Ali Kiapay, Ali Jafari- “Design and Fabrication of a tractor powered leaves collector equipped with suction blower system” - September, 2014Agric Eng Int: CIGR Journal Open access at <http://www.cigrjournal.org> Vol. 16, No.3.
- 2) M.Ranjith Kumar, N.Kapilan- “Design and Analysis of Manually Operated Floor Cleaning Machine” -International Journal of Engineering Research &Technology (IJERT) ISSN: 2278-0181 IJERT IS040912 [www.ijert.org] Vol. 4 Issue 04, April-2015.
- 3) Sandeep. J. Meshram, Dr. G.D. Mehta - “Design and Development of Tricycle Operated Street Cleaning Machine” - Journal of Information, Knowledge And Research In Mechanical Engineering ISSN 0975 – 668X|Nov 15 To Oct 16 | Volume– 04, Issue- 01.