

REVIEW PAPER ON FLOOR CLEANING MACHINE

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Abstract: With the advancement of technology, automated floor cleaning machines are getting more attention of researchers to make life of mankind comfortable. The concept is developing in economic countries but the reasons for non-popularity is the design complexity, cost of machines, and operational charges in terms of power tariff. In this paper, a semi-automated floor cleaning machine is proposed. This is capable of cleaning floor effectively in dry as well as wet cleaning tasks. This floor cleaning machine is designed by keeping the basic considerations for reduction in cost and efforts while being environmental friendly and easy to handle. The machine will work on electricity and will consist of simple fabrication. This work can be very useful to improve the life style of mankind.

Keywords: Semi-automated ,floor cleaning machine ,dry and wet cleaning , reduction in cost and efforts, electricity ,simple fabrication.

INTRODUCTION

Fully automatic and Semi-Automatic machines available in the market are of high ranges and high weights. So, keeping the focus on weight as well as cost, they are not affordable to all such as organization committee of hotels, hospitals, hostels. Hence, there is need to design and develop a floor cleaning machine which is multi use and cost effective.

In some places such as bus stations, temple halls, byres the floors are not regularly cleaned due to non-availability of machines. There is no machine in the markets which can be used on smooth as well as rough surface floors. Considering weight criteria, machine assembly, handling the machine is very flexible. This machine is affordable to all because of its uses and cost.

OBJECTIVE

- Objective of this project is to make semi -automated floor cleaning machine.
- Reduce the overall cost.
- Reduce human effort.
- To increase the effectiveness of floor cleaning.

LITERATURE REVIEW

❖ AKASH NAGTODE(2017)

“Solar operated floor cleaning machine. He had made a project on cleaning system based on solar power. For this he has used Pv panel which convert particle of energy (photons) into electricity. He use this clean energy to power his cleaning machine”.¹

❖ M RANJIT KUMAR (2016)

“The regular floor cleaning machines is most generally utilized as a part of airplane terminal stages, railroad stages, healing centers, transport stands, and shopping centers and in numerous other business places. These gadgets require an electrical vitality for its activity and not easy to use. In India, particularly in summer, there is control emergency and the vast majority of the floor cleaning machine isn't utilized successfully because of this issue, especially in transport stands. In this work, demonstrating and investigation of the floor cleaning machine was finished utilizing appropriate financially accessible programming. From the limited component investigation, we watch that the feeling of anxiety in the physically worked floor cleaning machine is inside as far as possible”.³

❖ SANDEEP. J. MESHRAM ET AL [2016]

“Design and Development of Tricycle Operated Street Cleaning Machine” – He has developed the street cleaning machine by tricycle operated. In this research article .He framed a model especially for rural area. He concluded that the cleaning is less effective in streets”.²

❖ MOHSEN AZADBAKHT ETAL [2014]

“Design and fabrication of a tractor powered leaves collector machine equipped with suction-blower system”-

“The authors explained about the fabrication of leaves collector machine by tractor powered blower. He has frame the machine by using chassis, pump, blower, gearbox, hydraulic jack. They concluded total power consumption of that machine is around 14634 W which can cover up to 20m range in distance”.⁴

❖ MANREET KAUR[2014]

“Design and fabrication of floor cleaner robot(manual and automatic).the author designed a robot to clean floor in both automatic mode as well as manual mode. His robot was equipped with ir sensors for obstacle detection, four motors and water pump .He concluded with convenience of dual mode operation of easy floor cleaning”.⁵

❖ MANYAJAIN, PANKAJ SINGH RAWAT (2016)

“This project is used for domestic and industrial purpose to clean the surface automatically. When it is turned on, it sucks in the dust by moving all around the surface (floor or any other area) as it passes over it.In the modern era, the automatic floor cleaner is required. Thus, the cleaner is designed in such a way that it is capable of cleaning the area reducing the human effort just by starting the cleaning unit”.⁶

❖ SAHIL BHARTI, S.R. SANDHAVE(2016)

“To develop an automated cleaning assistance this helps in cleaning flat surface with the ease of remote control with greater efficiency at work. The surface cleaning machine that is proposed in this project is the device that helps in cleaning of surface. There are many function that have to co-ordinate for the motion control”.⁷

❖ Dr. J. HAMEED HUSSIAN(2017)

“This module of automatic floor cleaning machine by micro controller is run to clean the floor and sweeps the dust away. In this the module a remote controlled car has gear motor is attached at front axis in between the front wheels , this motor is attached with a cleaning brush at front , and the gear motor is connected to 12volts battery and the remote car is attached with 9volts battery. The remote car is controlled by the micro controller”.⁸

CRITICAL REVIEW

Various authors have done various things with floor cleaning machine from automising it completely to making it ecofriendly and easy to use. Some have robotised the process by using of AI and some have used custom fabrication to fit various needs of cleaning like wet or dry cleaning. But one thing in common with all machine was the goal to reduce the overall cost and increase the ease of using the machine in multipurpose ways.

In future the scope is a fully autonomous cleaning machine which could perform several cleaning tasks and run on various ecofriendly power like solar or wind energy without need of human interventions.

PROJECT DETAILS

Project construction is simple and effective .the construction and operation cost is less compared to other product available in market. The machine is very easy to use. The machine consists of following parts:

- Custom chassis with wheels.
- Compressor .
- Motor.
- Vacuum pump.
- Brush and mop.
- Water tank and storage tank.
- Nozzles.
- Battery and switch board.

Conclusion

The use of innovative technology not only reduces cost significantly but also reduces the human effort while increasing the effectiveness of floor cleaning.

Reduced human effort means more frequent floor cleaning which results in increase in overall cleanliness and supports healthy well-being.

Small steps in technological advancement like this will have higher impact in long run in future, making India a better country.

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