

# Road And Floor Cleaner

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**Abstract-** A novel method of road cleaning application for Indian roads has been thought of and developed the human effort, so that the cleaning can be done in a single drive. This system has been used to clean roads and could clean various forms of papers, covers, food beverages, smooth dust and unwanted waste noticed on the roads. It is seen at present that a human pushing machines and cleaning is doing with human effort, and it is always to be done when roads are operated without traffic. Large machines have been made to overcome this problem, but it is very costly. In order to make less effort and very efficient system we can use the scrubbing system.

But scrubbing system is also not possible because of due to large roads, with running traffic. So, I am having an idea and design. In this design, collection of objects from 250GMS to fine dust can collect from roads with high efficiency. I hope that it will emerge as a future cleaning System.

**Keywords-** Cleaning, Emerge, Indian roads, Pushing machines, Scrubbing system.

## I. INTRODUCTION

In this project an effort has been made to develop a manually operated floor cleaning machine so that it can be an alternative for conventional floor cleaning machines during power crisis. A manually operated floor cleaning is developed with major list of objectives, one; to achieve simultaneous dry and wet cleaning in a single run, secondly to make the machine cost effective and thirdly to reduce the maintenance cost of the manually operated floor cleaning machine as far as possible. Environment is a place where humans as well as plants and animals live. Keeping it clean and neat is our responsibility. It is necessary to keep our environment clean because we get fresh air, reduce pollution etc. An unclean environment leads to a bad condition of a society, arrival of 2 diseases and many more. In recent years cleanliness is becoming an important factor for the betterment of the nation and so, to support the cause we have conducted a study, prepared a design and worked of a Semiautomatic Road Cleaning Machine. The conventional road and flour cleaning machine is most widely used in many application such as example roads, railway stations, airports, hospitals, bus stands,

in multi buildings, colleges etc. also this machine uses human energy for its working operation. It is a user friendly as well as eco-friendly

## II. METHODOLOGY

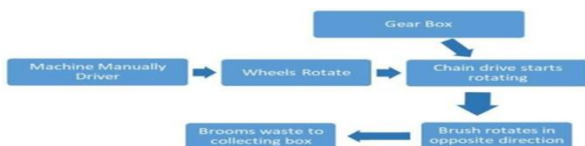
- 1) We came across the points that the available road cleaning machines that are in use cannot clean the floor and compact roads effectively, like in collages, companies, hospitals, and household purposes. Thus, for this an alternative method is essential. To overcome these disadvantages a simple and eco- friendly design is made. This machine is feasible to use for the household purposes and compact spaces. According to precious research the conventional road cleaning systems are costly and heavy that cannot clean most of the rough spaces. The alternative method that is used to overcome this drawback effectively
- 2) Cleaning is a necessary factor of daily routine process. Effective cleaning and sanitizing help and protect the health of human being directly and indirectly. The road cleaner is used to keep our surroundings clean. So that we fill fresh while walking on the street. Generally in the era of modern technology, different devices such as electric motors, diesel engines and robots are being used to clean floor, road. But such processes create abundant pollution, maintenance and are very tough to carry out. So in order to save energy and save nature, there is a need to develop, user-friendly road and floor cleaning machine.
- 3) A machine which should be operated manually so that it can as an alternative four conventional electric cleaning machine. The dust cleaning machine system is fixed with a pair of wheels which are connected with the help of shaft. The shaft makes the wheels connected to one and other. The Wheels are moved to the desired position with the help of manual force, which can handle is provided to move. The handle can be adjusted for a required height and are provided three adjusting holes for its. A chain drive is connected to the wheel and gear at each side. The chain is moved according to the wheel and gear. The moving alternative direction of the wheels.
- 4) **PROBLEM FORMULATION:** The effects of air pollution are now felt by everyone. They are still far from accomplishing their goal of cleaning the streets of the

dust. Even though cleaning is done every day, the practise has shown to be inefficient and expensive in terms of time, money, and energy. As a result, a mechanical push-on sweeper is developed to effectively clean the streets while saving resources like time, money, and electricity.

- 5) **LITERATURE REVIEW:** The manual study, expert interactions, and web- based research methods used for the literature review were all used. The machine-related literature was looked up online. The mechanisms in the prototype push-on sweeper were examined.
- 6) **ANALYSIS,CONCLUSION AND RECOMMENDSTIONS:** The prototype will then be analyzed from mechanical, economic and environmental perspective and necessary conclusions will be drawn out. Based on those conclusions recommendations will be given.
- 7) **FABRICATION:** With the application of appropriate processes, resources and tools, a prototype of the mechanical push on sweeper will be fabricated with the selection of suitable material
- 8) **DESIGN ANALYSIS:** A variety of machine design experiments will be conducted as part of the project. Using Solid Works 2013 for 2D sketching, dimensioning, and 3D modelling, various designs will be derived, examined, and modified as appropriate.

### III. WORKING

Eco friendly road cleaning machine is an advanced type of machine used for the roads or streets. We manufacture environmentally friendly road cleaning equipment without the need of motors, fuels, or power sources. The machine is powered or operated by human labour. A pair of wheels that are joined by a shaft hold the system in place. The shaft connects the wheels to each other. With the use of a manual force that can manage it, the wheels are shifted to the proper position. On one side of the wheel, there is a chain drive. The wheel and gear determine how the chain is moved. The brush sweeps the trash on the road and puts it into the trash cans while travelling in the opposite direction of the wheels



**Fig.1.2 Working of Road and Floor Cleaner**



**Fig: Style and Development of Road Cleaner Machine.**

### COMPONENTS

**CHAIN RINGS :** Chain rings are components of a bicycle drivetrain that connect to the crank-set. They have teeth that engage with the bicycle chain, transferring power from the rider's pedaling motion to the rear wheel.

**SPROCKET:** A sprocket or sprocket-wheel is a profiled wheel with teeth, cogs, or even sprockets that mesh with a chain, track or other perforated or indented material. The name 'sprocket' applies generally to any wheel upon which radial projections engage a chain passing over it.

**CHAIN:**Roller chain or bush roller chain is the type of chain most commonly used for transmission A sprocket or sprocket-wheel is a profiled wheel with teeth, cogs, or even sprockets that mesh with a chain, track or other perforated or indented material. The name 'sprocket' applies generally to any wheel upon which radial projections engage a chain passing over it. It is distinguished from a gear in that sprockets are never meshed together directly, and differs from a pulley in that sprockets have teeth and pulleys are smooth. It consists of a series of short cylindrical rollers held together by side links. It is driven by a toothed wheel called a sprocket. It is a simple, reliable, and efficient means of power transmission.

**Roller Brush:**The brush consists of the brush tool, ring and brush support. The brush support supports the brush in a groove holding it tightly. The brush support is welded to the ring fixing it. The ring is a circular structure made using flat bar which has central bar having bore to fix to the shaft which rotates to brush

**Chassis:-**The chassis is one of the major components on which the various components such as shafts, bearings, brushes, container and other components are mounted. It carries the load exerted on it due to various components and load of the dust particles collected during operation.

**Wheels:** Due to friction between the ground and the tire's friction material when the machine is being pushed ahead, the wheel is utilized to transmit rotational motion and torque to the machine. The cycle's tyre is decided upon. It disperses the

weight on the chassis into the soil, absorbs vibrations, and also supplies the machine's balance loads

### ADVANTAGES

- The process takes less time.
- There are less staff needed.
- This road cleaning machine was created primarily to clean plane, smooth surfaces like cemented, tile, and mosaic surfaces.
- The machine is easy to operate.
- Machines can also be used by unskilled workers.

### APPLICATIONS & FUTURE ASPECTS

1. Cements Factories
2. Steel Factories
3. Food Industries
4. Highway

### IV. CONCLUSION

Road cleaner that is manually operated and eco friendly has been successfully designed, analysed, and constructed. This project uses a manually operated, environmentally friendly road cleaner to clean the roads, saving money, time, and labour. During a power outage, it is the ideal replacement for an automatic road cleaning machine. It is discovered that the current road cleaning equipment runs on fuel and diesel..

### V. ACKNOWLEDGMENT

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