

Road Sweeping Machine

^[1] Vinodkumar M A, ^[2] Sunil S Harthi, ^[3] Sunil P, ^[4] Chetan S C, ^[5] Mr. Vinod Kumar Biradar
Mechanical Engineering(Final year students)
Visvesvaraya Technological University
Sri Sairam College Of Engineering Anekal, Bengaluru

Abstract: -- In this project, we are designing cycle for road cleaning machine, totally eco friendly & very cheap. We are attaching a brush in front of the cycle; we clean the road or street as the cycle move forward. The materials which are used in this project are easily available in the market. The parts can be easily replaces. These types of machine can be used in air port, industrial road, highways, parking, railways platform. No electricity is used in this machine by use of these types of machine we can easily clear the dust practical, animal waste, plastic bags. This machine is total based on mechanical & eco friendly. It types of machine are not costly; its maintenance is easy & very cheap. By use of this many uneducated people can get job. This machine used manpower to work. We are designing this machine eco friendly.

I. INTRODUCTION

Street cleaning machine is fully mechanical. A street sweeper or street cleaner may refer to either a person's occupation, or a machine that cleans streets. A street sweeper cleans the street, usually in an urban area. Street sweepers have been employed in cities since sanitation and waste removal became a priority. A street sweeping person would use a broom and shovel to clean off litter, animal waste and filth that accumulated on streets. Later, water hoses were used to wash the streets. Machines were created in the 19th century to do the job more efficiently. Today, Modern Street sweepers are mounted on truck accumulates in street. The Machine stands out due to the 2-wheels driven main roller brush. The advantages of this concept are especially the good straight forward drive and the sweeping result when driving a curve. Even when there is only one wheel driven in close curves, the main roller brush works constant which leads to an outstanding sweeping result. This agile machine sweeps good in right curves as well as in left curves. The height of the side brush is adjustable in four steps. The only 20 kg weighty machine works with the dustpan principle. Force dirt container which is in front of the main roller brush. This way you can avoid largely Un wished dust turbulence. The dirt container is with an ergonomic grip and there for easy to empty. The robust frame in the front is also easy to grip and allows easy transport e.g. over steps. The pushing handle is foldable and can be adjusted in three steps according to the size of the user. After using the machine you just fold down the pushing handle so you can store it space-saving in the upright parking position.

II. WORKING OF STREET CLEANING MACHINE

This type of machine is used to street cleaning. This machine is attached in front of cycle, and box is attached in front of the wheel. The box the horizontal brush is attached and brush is rotated with the help of gear which is attached to the wheel of the box. The brush rotates in anti clock wise direction. The box is attached with the cycle with the help of welding.

The Machine stands out due to the 2-wheels driven main roller brush. The advantages of this concept are especially the good straight forward drive and the sweeping result when driving a curve. Even when there is only one wheel driven in close curves, the main roller brush works constant which leads to an outstanding sweeping result. This agile machine sweeps good in right curves as well as in left curves. The height of the side brush is adjustable in four steps. The only 20 kg weighty machine works with the dustpan principle. Force dirt container which is in front of the main roller brush. This way you can avoid largely Un wished dust turbulence. The dirt container is with an ergonomic grip and there for easy to empty. The robust frame in the front is also easy to grip and allows easy transport e.g. over steps. The pushing handle is foldable and can be adjusted in three steps according to the size of the user. After using the machine you just fold down the pushing handle so you can store it space-saving in the upright parking position.

This machine works when the cycle move in front direction, the brush rotates in anti clockwise direction to the cycle move.

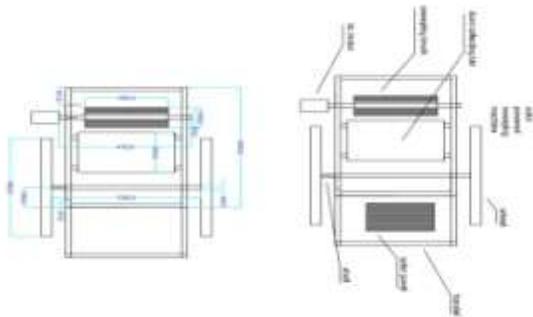
- The brush rotate in anti clockwise direction, so the dust and any waste material which is throne on the street will be collected in the box which is attach before the rotation brush.

- The brush rotate when the cycle sweeper wheels rotate on the ground, the brush is connected with the wheel of sweeper box.

• Brush cleans the street by rotating on the ground surface with the help of gear which is attached with the wheel of the box.

Mechanical brush sweepers are effective at removing coarse materials and gross pollutants. They are less Effective removing fine materials often associated with various pollutants and may expose such materials to wash-off. High-efficiency street sweepers and associated operations may increase the percent of total Solids removal from 30 – 70+%. Street sweeping frequencies approximately monthly to biweekly and varied depending upon land use and transportation features have been shown as being most effective for Pollutant removal.

As a pollution control practice, street sweeping is cost-effective when compared to structural best Management practices such as detention ponds, and settling or filtering devices and prolongs their Operational efficiency and required maintenance. As a pollution prevention or source control measure when integrated with other structural and non-structural, high-efficiency street sweeping improves Water quality and reduces ongoing habitat deterioration.



III. ADVANTAGES OF STREET CLEANING MACHINE

- This machine is fully mechanical
- This machine is Eco friendly.
- In this machine no fuel is used for working

• By the help of this machine, we can reduce Noise pollution and Air pollution.

- This type of machine is very cheap.
- Its maintenance cost is low.
- This machine occupied less space.
- By this type of machine all kinds of street can be clean.
- Main roller brush drive.
- The main roller brush is driven by both wheels – for excellent cleaning results even in tight corners.

IV. LIMITATION OF STREET CLEANING MACHINE

- Minor dust particle can't be clean.
- Total human interference is need.
- This machine take more time as compare to the machine which are used now a days.
- This machine needed human energy to work.

V. IN FUTURE SCOPE

- In future dust particle can be clean.
- In future speed for cleaning can be increase.
- Common man can buy this product for earning their lively hood.
- This of machine will be used in Railways, Air Port and bus.Stand.
- This type of machine can be used in hospital because this machine works silently.
- Common man can buy easily.
- Cleaning will be lot easier.

CONCLUSION & REFERENCE

VI. CONCLUSION

The very first street cleaning machine was invented in 1840, by joseph and then by C.S.Bishop. This machine was based of eco friendly way. This machine works on human effort. This machine is pollution free. We design this machine for easily cleaning the street. This machine works on paddle power, the sweeper is attach in front of cycle, as the cycle move forward the sweeper do its works. The brush inside the sweeper rotate in clock wise direction, so the brush throw the dust partial in the box attach with the design. In further this machine can remove tiny dust partial from the surface. This machine is very cheap. By used if this machine many people get job. In future we can increase the speed of cleaning

operation. This machine can be used in railways, air port, shopping mall and hospital.

REFERENCES

- □ www.Karcher.co.in
- <http://answer.yahoo.com/question/index?qid=20130612030515AATnWQ4>
- www.harries.com
- www.atlass.com
- www.hero.com
- <http://www.google.co.in/search?hl=en&ie=ISO-8859-1&q=km+70%2F20+c>
- “DESIGN OF MACHINE ELEMENTS” (MECHANICAL BOOK)

