

ECHO FRIENDLY ROAD CLEANING

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Abstract - Cleaning is the main basic need for all human beings and it is necessary for daily routine process conventional road and floor cleaning machine is widely used in many cases such as example road railway ,station airport, hospital ,bus stand etc. In our project we are aimed to use easily of level material with low cost and it is easy to use and control. It is better alternate option for Conventional machining It is manually operated “ **Eco friendly road cleaning machine** ”and it can work very efficiently with respect to area ,time and cost if road cleaning process compare with machineries.

KeyWords: Scrubber, roller brush, spur gear, adjuster, dust collector etc.....

1. INTRODUCTION

Environment is a place where humans as well as animal live. That’s why to keep it cleans it is very necessary. All of us needed the fresh air and we want to reduce the pollution and unclean environment leads to a bad society arrivals of disease and more. Before some years cleanliness is becoming an important factor for the betterment of the nation. There is no one single method that is suitable for all location and occasions and effective Cleaning depends on the type of cleaning device cleaning technique and also the equipment should be user-friendly. Cleaning work will be physically demanding and a need has been identified to develop a method for systematic ergonomic evaluation of lack of worker. However, in India unemployment is more and hence there is a need to develop less labour oriented cleaning machine.

2. Working

In this work components used as given below,

- 1) *Wheels:* Use two wheels each wheel having diameter of 609.6mm.
- 2) *Shaft:* The shaft length 500mm long and 25mm diameter.
- 3) *Supporting wheels:* Diameter of wheel 200mm

- 4) *Handle:* For the handle we are using two rods they are usually in bending shape .One of the rod length is 1092.2mm and another small rod of size is 685.8mm.For these two roads a vertical shape of rod is connected of length 203.2mm for this vertical rod an horizontal rod is attached of size of 457.2mm and the height adjustment is made with the rods.
- 5) *Bearings:* Bearings having an outer diameter of 60mm and inner having a 50 mm diameter.
- 6) *Brush:* Brush having a length of 480mm long and outer diameter of 250mm and inner diameter of 20mm.
- 7) *Collecting box:* The function of the collecting box is to collect the waste upto some quantity after that remove box and dump the waste. The dimensions of the collecting box measures length of 546 mm and width 233mm.

Project scope

Parameters	Specification
Axle material	Mild steel
Sweeper material	Polypropelene /plastic
Frame material	steel
Shaft (Axle)	20mm

Description

- Manually operated sweeper machine is eco-friendly as well as simple in construction and easy to work
- It cleans the surface as well as catches all unwanted material from road.
- After main shaft secondary chain used to rotate secondary axle which are directly connected to sweeper axle.
- Third axle also connected to system which has cotton brush which clean surface.
- For properly working of sweeper addition of new shaft.
- Addition chine drive in both side used to increase gear ratio.
- Addition of two wheel in back side of machine for giving support to frame.

Advantages

- Maintenance cost is less
- Compact design
- Easy to operate
- Fuel is not required
- Pollution less

Disadvantages

- Human effort is required
- Slow in operation as compare to automatic machine
- It runs only in plane surface

3. CONCLUSIONS

This design of eco-friendly road cleaning system can be used to clean any kind of remote places. As the chain mechanism selected can consume much less power so it will be the power saving and cost saving as well. Also, there is a need of a brush which operates automatically. As well as provides new add on of sanitization of road. Successfully designed, analyzed and fabricated. This project works implements the manually operated ecofriendly road cleaner for road cleaning that reducing the cost, human efforts as well as time. It is the best alternative for automated road cleaning machine during power crisis. It is found that the existing road cleaning machines uses petrol and diesel. It can cause pollution and also the vibration produced in the machine causes noise pollution. While manual cleaning may cause healthy problem as the person directly comes in contact with dust. Also, the shoulder problem due to continuously sweeping occurs. A manually operated ecofriendly road cleaner is an alternative concept for avoiding such problems. The manually operated eco-friendly road 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.

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REFERENCES

- 1 Modak J. P. "Bicycle Drive Mechanism & it's Adoption to the Development of a Manually Energized Process Machine" Invited Lecture, National Seminar on Human Engineering, Jan.'95 Organized by VIT, Pune & IIIE Chapter, Pune.
2. Modak J. P. "Design and Development of Manually Energized Process Machines having relevance to Village/ Agriculture and other Productive Operations" HUMANPOWER, International.
3. Abhishek Chakraborty, Ashutosh Bansal, "Design of dust collector for rear wheel of four wheeler", International Journal of Emerging Technology and Advanced Engineering, ISSN 2250-2459, ISO 9001:2008 Certified Journal, Volume 3, Issue 7, July 2013
4. Mohsen Azad Bakht, Ali Kiapey, 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.

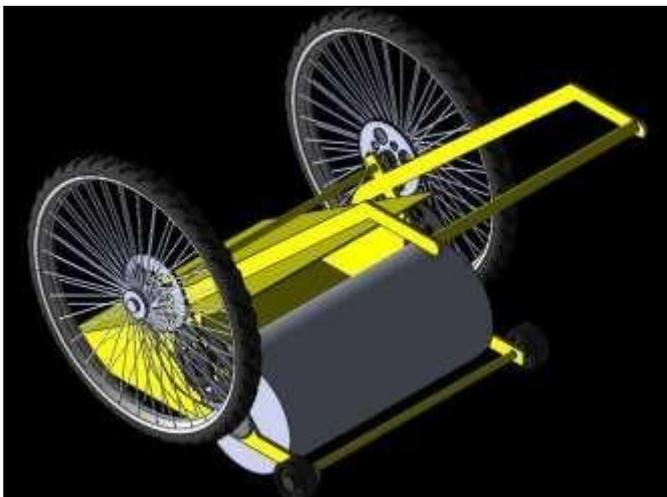


Fig -2: Using Auto cad