FABRICATION OF LEAF VACUUM MULCHER MACHINE

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Abstract:-

In many public places and colonies, leaves fell from the trees usually these leaves are gathered by sweeper and burn them during a corner which lead in pollution , rather than burning it are often used as compost fertilizer by applying some methods for recycling this natural debris that one among the methods is using leaves as mulch. So, for creating use of leaves to its fullest we are designing a leaf vacuum which can be discussed during this paper.

Key Words: **Vacuum ; Crusher ; Reuae**

1. INTRODUCTION

In our day to day life, we see various sorts of wastes alongside shed leaves sometimes beside roads or maybe walk ways in locality. This causes various organisms to require birth leading to different diseases to the living being nearby it. We have volunteers of Municipal Corporation to wash those wastes from locality and drop them to dump yard. But usually sweepers gather all the leaves from the bottom and arrange it at road side and burns it, as its not efficient for them to maneuver those waste materials to dump yard, each and every time. So as to avoid burning of this waste causing harmful gases and pollution, we've designed leaf vacuum system which is so as to save lots of the person power required for raking and also to separate and recycle the natural debris from it also because the other unwanted materials. This system will help to gather great quantity waste in smaller place and afterward to hold an equivalent material for processing of it.

2. PROBLEM STATEMENT

Cleaning the leaves may be a tiring also as time consuming task. In spite of cleaning leaves manually, it's quite difficult carry those leaves in one deem elderly and therefore the disabled. As a result burning these leafs is the only option left for such peoples, which causes pollution.

3. OBJECTIVE

The main objective of our project is to style and manufacture a vacuum mulch system which will help in cleaning work in order that the efficiency cleaning operation is increase. We know in collecting the leaves it take an excessive amount of effort for our labour first they need to collect then put in one sack or a box, then they put the leaves in dumping yard it became very time consuming work so to resolve this issue and save time our project will help the labour. When labours or workers dump or just fire them stupidly about their repercussions the firing the leaves create pollution hence to scale back the effect of the shaded leaves on surface and pollution caused by it we are getting to design a leaf vacuum mulcher machine We can have another benefits from it due to the shredded leave we used them as a organic without wasting one penny thereon.

4. LITERATURE REVIEW

1984 John et. at. DESIGN OF LEAF AND TRASH ASSORTMENT EQUIPMENT the target of the invention is to supply a equipment for cleaning up leaves & different trash from lawns, flower beds.

1992 Michael et. al. CONVERTIABLE BLOWER VACUUM a tool which is employed as a blower or to regulate as a vacuum. Blowers which could convert to vacuums give an additional degree of skilfulness to the present product.

1980 Charles et. al. TRANSPORTABLE BLOWER-VACUUM UNIT improvement of vacuum unit. A mulching blade rotates with the blade to chop any solid material passing through the hose.

1995 David et. al. CONVERTIABLE LEAF BLOWER AND VACUUM EQUIPEMENT optimising device to be a equipment.

1986 Robert et. al. REPRESENTS CONVERYTIBLE VACUUM BLOWER ARRANGEMENT incorporates a housing having associate air body of water associate decreed an air outlet in disclosed.

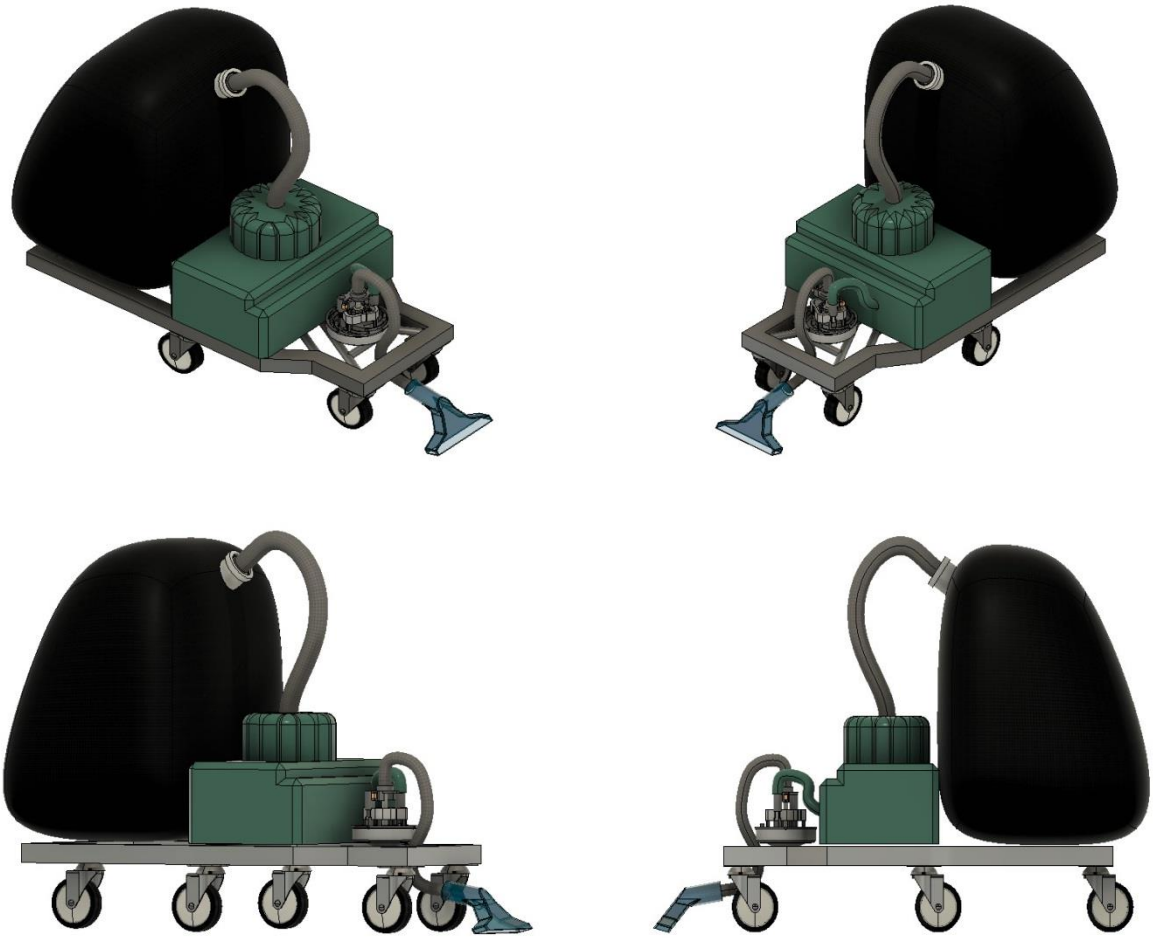
5. RESEARCH METHODOLOGY

- Planning of the project
- Selection of the material
- Designing the parts and assembly
- Working
- Usage

6. ASSEMBLY

The arrangement of the part includes the motor, vacuum and therefore the structure of the collector capacity. The collector is arranged in such how that they're used for collecting the straightforward disposal of the leaf. CAD designing is done using Fusion360. Some parts are made by using a 3d printer.

The cad model made in fusion360 are as below :-



7. WORKING

The leaf is collected by the vacuum by the hose connected thereto. The sucked leaf is fed into the blade which is driven by the motor. Then the leaves are chopped into several small pieces by the blade. The dimensions of the leaf is reduced to small, then the collected leaves are often used because the manure for the garden or parks.

8. APPLICATION

- The problems of the disposal of leaves are often solved.
- Organic manure is obtained rather than burning them openly and release of harmful substances into the atmosphere.
- Collecting and carrying gets easier.

9. USAGE

Usually the dried leaves itself act as a natural fertilizer for the trees. It may takes long time to decompose the dried leaves, so these leaves were grinded into fine parts, such that it will decompose in a short period. The dried leaves of many plants and trees will combinable act as an good fertilizer. These will be used in agricultural fields for producing own natural fertilizer.

Secondly we can use the mulch to produce biogas which can make a good use of leaf mulch. The amount of mulch will be so much as it will be collected from every roadside and it will be very useful for the biogas production.

10. CONCLUSION

The main aim of this project is to form a clean environment with less human effort. The leaves that are collected is chopped well by the blade attached to the motor. The chopped leaves are often used as manure or mulch for the garden purpose. This project is collecting the leaves within the garden, roadways, pathways etc. The human power is reduced and time consumption is reduced for collecting the leaves. It's cost effective and straightforward operating mechanism compare to other leaf collecting instruments and machines. It's eco-friendly and energy efficient and doesn't cause any pollution the society.

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