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MEC299

DESIGN AND FABRICATION OF WASTE FOOD SHREDDER COMPOST MAKER MACHINE

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Abstract

Organic material called compost can be put to soil to aid with plant growth. Currently, more than 30% of our garbage is made up of waste food and yard debris, which might be composted. Making compost prevents these materials from ending up in landfills, where they take up space and emit powerful greenhouse gases like methane. However, there are an issue to turn the waste food into compost because the compost maker machine is hard to find especially outside the town. Therefore, the objective of this project is to create a waste food shredder compost maker machine that using DIY items that are easy to find wherever you are. The waste food shredder compost maker machine will not use any electricity so all of the work needs to be done by human work. The advantage of manual compost maker machine is it can be use everywhere without depending on electricity sources. This give huge advantage for consumers to use it when there are no electricity around. Next, the compost maker machine design begin with choosing the best shape and material for the machine. Research on waste food shredder compost maker machine will also be done so the knowledge of how to make the machine increase. Undoubtedly, this project faces a number of challenges and difficulties that must be solved and looked into. However, the expectation of this project is it will well function and achieve all the main objectives.

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CHAPTER 1

INTRODUCTION

1.0 Introduction

Compost for plant growth can be easily made from waste food. The shredder food machine will help the food to be degrade faster because of its size. The shredder food will shred waste in a matter of second. The machine will be powered by bicycle that doesn't consume electricity. The bicycle powered compost shredder machine will have shredding blades along with belt pulley arrangement, shafts, and rollers to achieve desired result.

1.1 Background of study

The rise of modern technology has a tremendous impact on the lives of every worker in this world. There are issues in every industry and small piece of creation can change a lot of things. In farming industry, there are so many issues about plants cannot grow because of unperfect compost.

A perfect compost has every good organic so the plants can grow massively. A compost should have every required vitamin and waste fruit along with vegetables is a good resource for it. However, a perfect compost is very hard to make and find in nearby market. So, farmers need to know how to make a compost without causing them much trouble.

Organic waste, or green waste, is organic material such as food, garden, agriculture and lawn clippings. It can also include animal and plant based material and degradable carbon such as paper, cardboard and timber. Burying organic waste in landfill is a big problem. Food waste is the organic material having the high calorific and nutritive values to microbes, that's why efficiency of methane production can be increased. In all the cities and places, organic waste is dumped or disposed in landfill or discarded, which causes the public health hazards and diseases like malaria, cholera, typhoid. Inadequate management of wastes like uncontrolled dumping bears several adverse consequences. It is not only polluting ground water and surface through leachate but also promotes the breeding of flies, mosquitoes, rats and other disease bearing vectors. Also, it produces unpleasant odor and methane which is a major greenhouse gas contributing to global warming.

Agriculture is the major occupation in many parts of the world and producing a range of waste waters requiring a variety of treatment technologies and management practices. The basic occupation of 70% of the population in India is majorly dependent on Agriculture. A variety of crops are cultivated in India. But after harvesting them the crops wastages are either burnt out or thrown as waste without taking into consideration of their nutritive value. With the increase in the population our aim is not only to stabilize agriculture production but also to increase it further in sustainable manner. Excessive use of agro-chemicals like pesticides and

fertilizers over years may affect the soil health and lead to declining of crop yields and quality of the products. Hence, a natural balance needs to be maintained at all costs for existence of life and property. The obvious choice would be judicious use of agro-chemicals and more and more use of naturally occurring materials in farming systems.

Agriculture waste, which includes both natural and non-natural wastes. The conventional agrowaste disposal is a traditional and oldest method of waste disposal in which agriculture wastes are dumped as it is to degrade in a particular place for decomposing. As the waste are dumped, it takes more time to degrade and it causes environmental pollution. Hence the shredder machine is used for shredding i.e. converting of macro agriculture waste and food waste into small easily decomposable form, which can used as organic manure. The small size waste will decompose faster than the large or macro size waste. This decomposed waste can be used for the crops and this leads to improving in the growth and quality of the crops and also improving the soil chemical properties such as supply and retention of soil nutrients, and promotes chemical reactions.

1.2 Problem Statement

The main problem with normal waste food shredder compost maker machine is it tend to be built with unnecessary thing that make the machine hard to moved around. After that, compost machine that powered by electric usually causing problem for consumer since it need to be plugged. So, the targeted consumer which come from poor area is suitable for the manual food shredder.

1.3 Objective

The main objective for this project is

a) To design a waste food shredder compost maker machine for the targeted consumer which is come from poor area.
b) To fabricate a waste food shredder compost maker machine.

1.4 Scope of work

The scope of work for this project are

a) Materials that will be used is metal and wood.
b) The fabrication includes cutting, welding and drilling.
c) The designing process using A4 paper and SolidWorks application.
d) This product is to be used outside by individuals at the house.