

# Fabrication of Compact Shredding Machine

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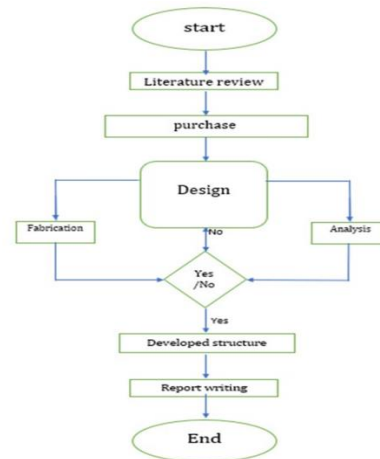
**Abstract** - The scope of this project was to style and development of Shredder machine specializes in chopping of coconut leaves, areca leaves, this chopped powder to organize the vermin compost. The project began with collection of data and data on user lifestyle and current process by which they perform their job. an idea was developed with reference to 4 different shredder machine and operating processes. Concept was developed considering the security factor users operating environment and maintenance. Considering the users' needs and buying capacity, a prototype was fabricated. The machine consists of single-phase motor, spur gear, bearings, structural frame, cutter, and dual shaft. The machine frame is made using low-carbon steel and tungsten carbide is employed for cutter tip preparation. Eight cutters are mounted on two shafts, which rotate parallelly driven by a spur wheel. the facility from the electrical motor is transmitted to cutter shaft through a belt drive. Cut is formed inside the chopping house thanks to the effect of tensile, friction, and impact effect in chopping process. The coconut leaves get chopped and powder is collected at rock bottom. Organic waste shredder designed should perfect to shred all types of waste products. The organic waste shredded are going to be in small pieces to enable the farmer to form use of it as feed for manure or organic manure.

## INTRODUCTION

Agriculture is that the primary source of livelihood for about 58% of India's population. Organic waste like food, garden, agriculture is being produced excessively. But after harvesting, the crop residues cannot be just buried into the environment without identifying their calorific and nutritive values to microbes. Since the population keeps on increasing, the extent of agricultural production should even be increased. therein case, the demand for fertilizers also gets increased. Excessive use of chemical fertilizers and pesticides by farmers in agriculture to reinforce crop yield is detrimental to human health and environment. Fertilizers and pesticides use have led to

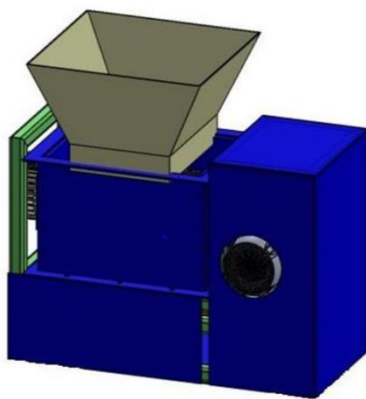
the matter of air, water, and soil pollution. The laughing gas produced by microbial action on inorganic fertilizer in soil causes depletion of stratosphere ozonosphere which function shield against harmful UV-rays emanating from the sun. AGRO WASTE- it is generally a term which is employed to explain the waste produced on the farm after harvesting. it is estimated that it accounts for about 25% of the planet wide agricultural productivity. the traditional agro-waste disposal method is traditional, and it requires longer for decomposing. It also causes environmental pollution. Hence the compact shredding machine is employed for shredding (i.e) it can convert macro agricultural waste and other organic waste into small easily decomposable form which may be used as an organic manure during a very short time. the tiny size will decompose faster than the massive or macro size waste. This decomposed waste is often used for agricultural production resulting in improved quality of crops and increasing the soil chemical properties like supply and retention of soil nutrients and promotes reaction which reinforces the decomposition process.

## METHODOLOGY



MATERIAL SPECIFICATION

Sl No	Description	Materials
1.	Cutter and Bushes	High carbon steel
2.	Shaft	Carbon(C11) grade
3.	Electric Motor with planetary gear box	2 HP 3 Phase, output rpm 96
4.	Structural Frame	Mild steel
5.	Base plate and supports	Mild steel
6.	Hopper and collecting vessel	Mild steel sheet
7.	Bearings	UCP 204
8.	Gears	EN 8



Three-dimensional visualization of our project



Fabrication of Shredder Machine

WORKING

When one phase AC current is passed the motor starts. The motor which has 1 HP and 1440rpm rotates the motor shaft which is fixed with 4inch pulley and therefore the shaft with blades fixed with 2inch pulley therefore the shaft speed is doubled to 2880Rpm. This machine works completely on the idea of pure rotation

force but not by the torque. So, there is no need of drugs box. When the shaft rotates at high speed the blades also rotate along that speed. The blades exert hammering effect on materials being inserted through the hopper. The seizer and blade only have half inch distance when the blades rotate at high speed it creates centrifugal force this force lifts the uncut.

APPLICATION

- The waste shredder machine is often applied not only in mass level but also small level agricultural field.
- The Coconut husk and Coconut fronds are often easily converted to small pieces and may be use as an honest fertilizer for coconut cultivation.
- It is often utilized in forest industry to convert the heap amount of tree branches and leaves including peals to useful fertilizer or vermin-compost.

CONCLUSION

After the preparation of the model, we conclude that atomize machine is best choice to shred the organic waste rather than using manual operated shredder. during this we designed the machine by considering the varied factors into consideration. The machine is formed for little businessman; therefore, the work administered by these machines is a smaller amount.

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