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MULTI PURPOSE AGRI CUTTERMACHINE

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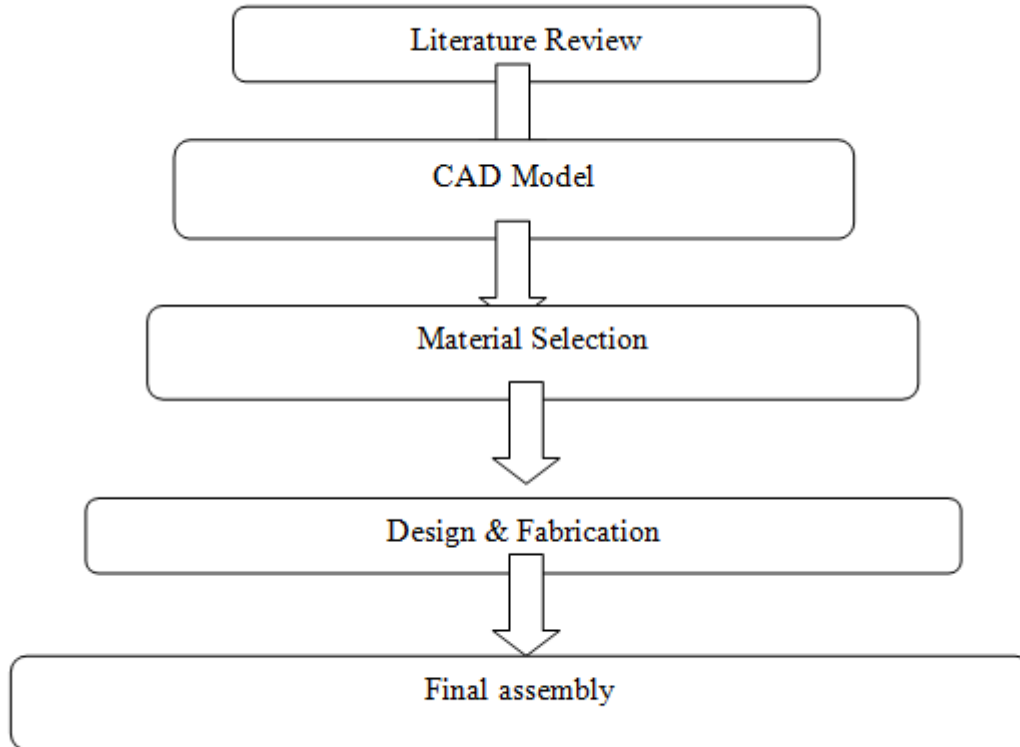
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ABSTRACT

Indian agriculture has a lots of dependency on the farm labour for many kinds of operation. The main products of the farm are needed to be harvested crops. Hence the main purpose now a days is to reduce the labour hour and work. Thus taking into account the fact that the development of a portable multi-purpose agricultural cutter using electric powered motor is required and also operate by pedal. For this purpose the development of the cutter and then the shaft mounted speed reducer belt drive arrangement is to be done. After development of cutter the stress developed at the cutting edge and force acting on entire linkage is measured. Then these stresses will be evaluated in ansys by applying proper boundary condition. Again different material will be tested and examined for manufacturing.

INTRODUCTION

Multi agri cutter is a machine that uses revolving blades for cutting crops, sugar cane, wooden materials etc., even more sophisticated devices are there in every field, but power consumption becomes essential for further, multi agri cutter is a very use full device, which is very simple in construction, it consists of simple manner used components are motor and rotating disc arrangements. Here the motor is working use in with the help of electric power supply, on the motor shaft smaller pulley fitted androtating disc having bigger pulley for reduce RPM. The rotating disc arrangements are running like a cam. the cutter is fixed on the top of the arrangements. When we switch on the machine the motor starts to rotate the cam arrangements, here the rotary motion is converted to linear motion by using this slider crank mechanism, the linear motion is connected to the cutter joint, so that cutter moves upwards and downwards direction the cutting process is carried out through this machine.



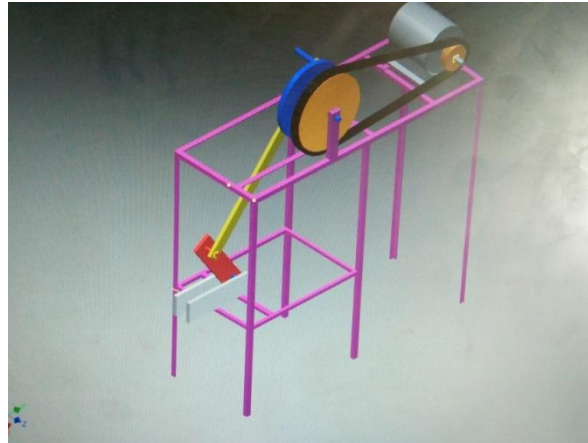


Fig 1 :multi purposeagri cuttermachine model

MATERIAL SELECTION

1. motor	1 HP
2.cutter	200 X 50 mm
3.belt	3 meter
4.pully	1. 300mm 2. 100mm
5.bearing	4 piece 20 mm inner dia.
6.Metal rod	800m
7.Pedal operated speed regulator	1 piece
8.L angle	As required

DESIGN

Table length	1140 X 400 X 1000 mm
Distance beteen to pully	620 mm
Cutter portion	150mm
Connecting rod length	550 mm

FABRICATION

- 1.Metal cutting
- 2.Drilling
- 3.Welding
- 4.Grinding
- 5.Painting
- 6.Assembling

FUTURE SCOPE

This machine can be use in everywhere like agricultural field. very useful for sugar cane making farmers

CONCLUSION

Now we know that Reduce human interference. To reduce work time.To reduce human effort Because of this machine for cutting crops, cutting drumsticks etc.We have used cutter and 1 H.P single phase which require low electricity & easily available anywhere so it's beneficial to farmer.By using different types of blades we can obtain different types of shape of product.By using this machine we can cut the sugarcane bud so that it can be utilized for farming.



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REFERENCES

1. *Kinematics and kinetic analysis of the slider-crank mechanism in otto linear four cylinder Z24 engine, March 2011, Journal of Mechanical Engineering Research*
2. *Design & Modification of Chaff Cutting Machine, April-2016 ,International Research Journal of Engineering and Technology (IRJET)*
3. *Design And Modification Of Sugarcane Bud Scooping Machine, April-2016, International Research Journal of Engineering and Technology (IRJET)*
4. *Speed losses in V-ribbed belt drives, November 2014, Elsevier Ltd.*
5. *Design and optimization of slider and crank mechanism with multibody systems , June 2015, International Journal of Science and Research (IJSR)*
6. *Review on solar food cutter with shaft mounted speed reducer for agricultural field application, January 2015, International journal of research in aeronautical and mechanical engineering..*