

Fabrication of Banana Harvesting Machine

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ABSTRACT: Banana Harvesting Machine is the machine which is used for the Harvesting purpose of the plantains as the name indicates. The normal harvesting methods are not economical for a bulk Plantation and a difficult process. So this machine reduces time as well as human effort. The machine mainly consists of a lead screw mechanism, cutting blade and motor. The lead screw mechanism is used for the purpose of raising the cutting blade. The blade then cuts the fruit and the gripper holds the plantain. The main advantages of the machine are reducing the time and also reducing the human effort, and less maintenance cost. By utilising the mechanism the profit can be increased by a great amount. A moderately trained human being can operate the machine properly. This machine is one of the most needed for the farmers in the current agricultural scenario.

KEYWORDS: Banana Harvesting Machinery, lead screw Mechanism, cutting blade and motor, gripper. reduce the workforce, increase the profit and reduce the time consumption.it is an easily portable semi automatic machine that mainly works on rechargeable power by means of work. the major working is lead screw driven by a motor

I. INTRODUCTION

A banana plantation is commercial farming mainly depending on climatic conditions and soil properties specifically found in tropical climates. In the current global scenario banana cultivation is a highly successful and economical plantation method to achieve an affordable profit in the world wide market.

According to the global survey details the employee and power needed for the harvesting is currently high and consumes more time. The overall profit achieved will be less in this condition. To encounter the problem and overcome the overall losses, a newly designed motor operated banana harvesting machine is introduced.

II. METHODOLOGY

This banana harvesting machine aims to reduce the workforce, increase the profit and reduce the time consumption.it is an easily portable semi automatic machine that mainly works on rechargeable power by means of work. the major working is lead screw driven by a motor

LEAD SCREW

A lead screw is also known as a power screw or translation screw. A lead screw turns rotary motion and linear motion.The screw thread has larger frictional losses compared to other linkages. A lead screw has a low coefficient of friction between sliding surfaces. The pitch of the lead screw is the axial distance between the threads.

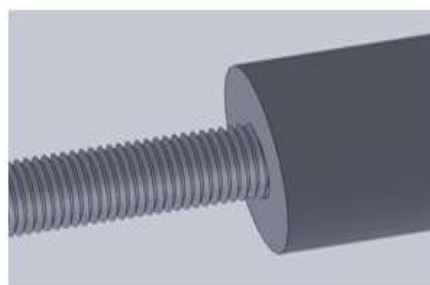


Figure 1-lead screw

CUTTING BLADE

A blade is a portion of a tool, a weapon of the machine with an edge that is designed to cut, chop, slice the surfaces of the material that comes in contact. these blades work by concentrating force on the cutting plate which is driven by a motor.



Figure 2- cutting blade

DC MOTOR

A dc motor is a rotary electrical motor that converts direct electric current into mechanical work. These motors work on the basis of Lorentz law, which states that the current-carrying conductor placed in a magnetic field and electric field experiences a force and rotates.



Figure 3- DC motor

GEAR

Gears are commonly made of either brass or steel. They are commonly cylindrical in shape and gears can be noisy, especially if there is not enough lubrication. The gears are straight-toothed and connect to a parallel shaft and it delivers high torque at low speed. Gears used in mechanical applications to increase or decrease speed by transmitting motion and power from one shaft to another.



Figure 4- Gear

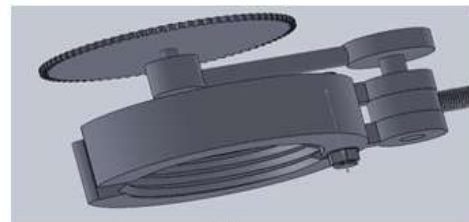
III. MODELLING



(a)



(b)



(c)

Figure 5(a,b,c)- CAD drawing

IV. RESULT

The project banana harvesting machine was able to cut the plantain successfully without any damage. It reduces human effort and it can be managed by any unskilled person.

V. CONCLUSION

There are many methods for harvesting bananas which are highly costly. In our machine we are using a lead screw mechanism. Proper use of the machine is needed to reduce a higher amount of risk, and also it does not have any environmental pollution. By utilizing the mechanism the profit can be increased by a great amount. A moderately trained human being can operate the machine properly. This machine is one of the most needed for the farmers in the current agricultural scenario.

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