AUTOMATION OF SEED SOWING ROBOT

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ABSTRACT

Sowing is the most important process in forming. It is very tiring and time- consuming process that requires a lot of human effort. Here we propose the design and fabrication of a fully automatic seed sowing robot that automates this task. The proposed robot uses four motors for running it in desired directions. We use a small bracket for pouring seed. The robot consists of a funnel like arrangement in order to pour seeds into a lower container. There we use a shaft with gear like bucket teeth to pick up the limited quantity of seeds and pour them on the ground in steady manner in proper quantity. The front of the robot can be further fitted with a bent plate that drags on the soil to make a slot ahead of the machine before seeds are poured in it. The back portion portion of the robot can be fitted with a tail like bent rod that is again used to pour soil on seeds sowed thus covering them with soil Thus the system completely automated the seed sowing process using a smartly designed mechanical robotic system

Today's marching towards the rapid growth of all sectors including the agricultural sector. To meet the future food demands, the former have to implement the new techniques which will not affect the soil texture but will increase the overall crop production.

We made it raw materials thus it was so cheap and very usable for all small-scale former. For effective handling of the machine by any former or by any

untrained worker. We simplified its design. Also, its adjusting and maintenance method also simplified. Choosing a metal fabrication method suited to a given project depends on part geometry, the product's intended purpose, and the material used in crafting it. Metal fabrication processes areas follows: Casting, Cutting, Drawing, Folding, Forging, Extrusion, Machining, Punching, Shearing,Stamping and Welding.

Casting-: Casting is when molten metal is poured a mold or die and allowed to cool and harden into the desired shape.

Cutting-: this is very common type of metal fabrication is the cutting of a workpiece to split it into smaller sections. While sowing is the oldest method of cutting, water jet cutting power scissors and plasma arc cutting.

Drawing-: Drawing uses tensile force to pull metal into and through a tapered die. The die stretches the metal into thinner shape. Usually drawing is performed at room temperature, and is called cold drawing, but the metalworkpiece can be heated in order to reduce the required force.

Folding-: This metal fabrication process works by manipulating metal to bend at an angle. The most common means is with a brake press that createsin the metal by pinching it.

Forging-: Forging uses compressive force to shape metal. A hammer or die strikes the workpiece until the desired shape is formed.

Extrusion-: In the manufacturing process, the workpiece is forced through or around an open or closed die. When forced through an open or closed die, the diameter of the workpiece is reduced to the cross-section of the die.

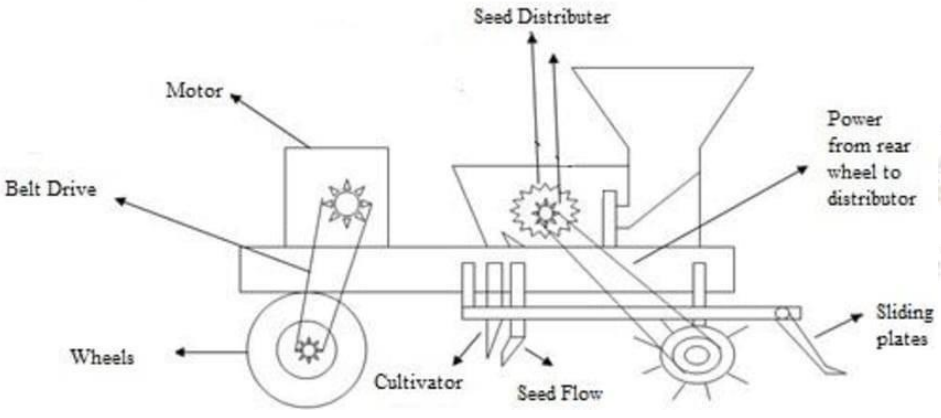
Machining-: This metal fabrication method called machining refers to the process of shaping metal by removing the unwanted material from it. This process can be performed in a variety of ways. There are many differentmachining processes, including drilling, turning and milling

Punching-: Uniquely shaped turrets on a punch press heat the metal through or into a die to create holes.

Shearing-: This type of metal fabrication is where one long, straight cut achieved by combining two tools, with one of the tools above the metal and the other onelocated below for applying pressure.

Welding-: Welding with welding, two or more piece of metal are joined together, through a combination of heat and pressure. This is a popular process because the pieces of metal can be any shape or size. Four of the popular types of welding procedures are stick or Arc Welding, MIG Welding, TIG Welding, and Flux Cored Arc Welding.

Designing-: Before anything else, the project must be designed. While some fabricators still rely on hand-drawn diagrams, and those can be sufficient for basics projects, modern Engineer generally use CAD (Computer Aided Design)software such as AutoCAD or Solid works.



INTRODUCTION

The Automation seed sowing machine are developed. In this proposed work they have focused on seed sowing process to avoid the drawbacks. The seed sowing machine is developed which have very less cost. Also, the unskilled farmer can be easily operated automatic seed sowing system.

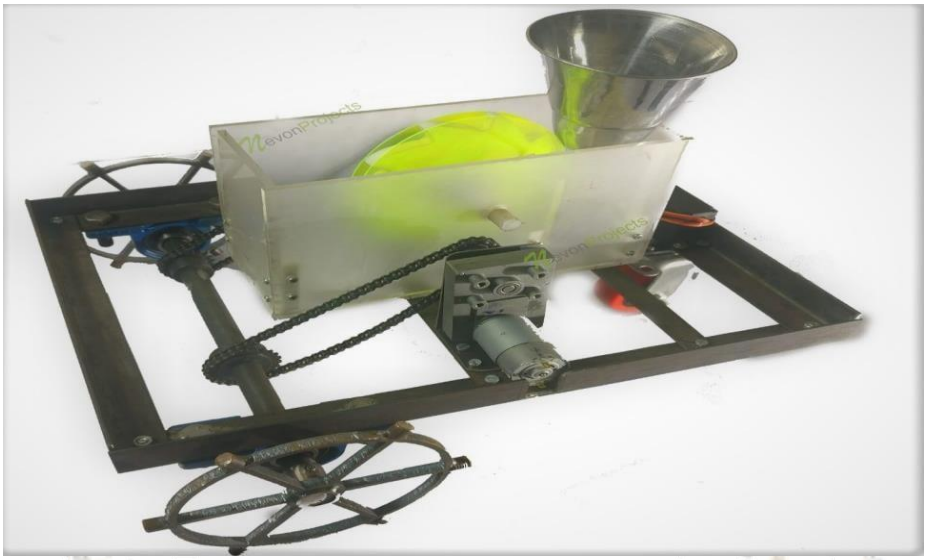
Seed sowing is important and tedious activity is so lengthy also it needs more workers. Thus, agriculture machines were developed to simplify the human efforts. In manual method of seed planting, we get results such as low seed placement, less spacing efficiencies and serious back ache for the former. This also limited the size of field that can be planted. Hence for achieving best performance from a seed planter, the above limits should be optimized. Thus, we need to make proper design of the agriculture machine and also selection of the components is also required on the machine to suit the needs of crops. The agriculture is the backbone of India. And for sustainable growth of India development of agriculture plays vital role. The India has huge populationand day by day it is growing thus demand of food is also increasing. In agriculture we saw various machines. Also, there traditional methods are there. Since long ago in India traditional method is used. Also, India has huge manpower. This manual planting is popular in villages of India. But for large scale this method is very troublesome. The farmer has to spend his more time in planting. But time available is less for him. Thus, it requires more man power to complete the task within stipulated time which is costlier. Also, more wastage happens during manual planting. Hence there is need of developing such a machine which will help the farmer to reduce his efforts while planting. This process of using machines is called as mechanization. Along with mechanization automation also helps to increase the efficiency of the process.

Methodology

It works on simple mechanism, a battery-operated D.C. motor is used transmits the rotary motion to the shaft with the help of chain drive, and there is another connection of sprocket and chain to the rotary motion. When the farmer puts seeds into the hopper. As the seed rotates, seed dropsin the seed pipe, which is connected to the furrow opener for the seeding, there is furrow closer for covering the seeds by soil.

All facility is provided in automatic seed sowing machine. In seed sowing machine system, we are used battery powered wheels and D.C. motor inbuilt in these wheels. In this system seed storage tank are used. This system provides to all the facility which can work efficiently. Also, the farmer can sow the seed very much easily. As well as time will be saved. This system is very useable to farmer. Seed can be sow automatically.

The automated seed sowing technology is a method design in order to reduce the human efforts as it requires less amount of manmade labor and can be handleefficiently without a skilled operator.



RESULTS

Successfully we achieved the result that is used to pour soil on seeds sowed thus covering them with soil. Thus, the system completely automated the seed sowing process using a smartly designed mechanical robotic system. During testing of the robot, different types of seeds have been sowed in a proper sequence, according to different rows and columns marked in the field which results in proper germination of seeds.

PROBLEM STATEMENT

In the present scenario most of the counties do not have sufficient skilled manpower in agriculture sector and that affects the growth of developing countries. Therefore, farmers have to use upgraded technology for cultivation activity (digging, seed sowing, fertilizing, spraying etc.) So, it's time to automate the sector to overcome this problem which in turn will also eliminate the requirements of labors and also avoid the wastage of seeds.

FUTURE SCOPE

- Introduction of cutter in place of drill can be used as grass cutterequipment.
- Using remote control machine can be mate automatic.
- Addition of multi-hopper can be attached side by side for sowing oflarge farm,
- Water dripping unit could be included in seed sowing machine.

CONCLUSION

Innovative seed sowing equipment's has remarkable influence in agriculture. By using this innovative project of seed sowing equipment, we can save more time required for sowing process and also it reduces lot of labourer cost. It is very helpful for small scale formers. After comparing the different methodsof seed sowing and limitations of the existing machine this machine can be made by raw materials also which saves the cost of whole project and is easily manufactured in available workshops. The only cost is of by using this machine we can achieve flexibility of distance and control depth variation for different seeds, hence usable