

International Research Journal of Modernization in Engineering Technology and Science

(Peer-Reviewed, Open Access, Fully Refereed International Journal) Volume:04/Issue:04/April-2022

Impact Factor- 6.752

www.irjmets.com

DESIGN AND FABRICATION OF SEED SOWING MACHINE

Saurav Chaudhari^{*1}, Praful Dhongade^{*2}, Dilip R. Rangari^{*3}, Abhijit A. Kansakar^{*4}

*1,2,3Student, Mechanical Engineering Department, S.S.P.A.C.E., Wardha, India.

*4Asst. Prof. Mechanical Engineering Department, S.S.P.A.C.E., Wardha, Maharashtra, India.

ABSTRACT

Sowing machine could be respectable to all granges, all types of fraternity, robust construction, also it should be dependable, and this is introductory demand of sowing machine. Therefore we made sowing machine which is operated manually but reduces the bid of growers therefore adding the effectiveness of planting also reduces the trouble encountered in homemade planting. For this machine we can plant unlike types and unlike sizes of seeds also we can vary the space between two seeds while sowing. This also increased the sowing effectiveness and delicacy. We made it from raw accoutrements therefore it was so affordable and veritably usable for small scale growers. For effective running of the machine by any planter or by any unpractised worker we simplified its design. Also its conforming and conservation system also simplified. The main significance of this semiautomated seed feeding vehicle is to inculcate the seed as per the needed depth with certain space and covering the seed with the soil with the help of closing jaw or crinkle closer. And this machine is also used for the crinkle in order to feeding the seed as per the depth. Thissemi-automated seed feeding vehicle won't affect the soil, it'll increase the overall crop product. This machine reduces the trouble and total cost of feeding the seed.

Keywords: Ball Bearing, Shaft, Hooper, Chain Drive, Sprocket, Democrat, Crinkle Nature. 2. 2.

I. **INTRODUCTION**

The present invention relates to a device for sowing grainy accoutrements, particularly diseases substantially for the solid toxin and the seed. The major occupation of the Indian pastoral peoples husbandry and both men and women are inversely involved in the process. It has to support nearly 17 of world population from 2.3 of world geographical area and 4.2 of world's water coffers. The present cropping intensity of 137 has registered an increase of only 26 since 1950-51. The net sown area is 142 Mh. The introductory ideal of sowing operation is to put the seed and toxin in rows at asked depth and distance, cover the seeds with soil and give proper contraction over the seed. A traditional system of seed sowing has numerous disadvantages. The agrarian has always been the backbone of India's sustained growth. As the population of India continues to grow, the demand for yield grows as well. Hence, there's a lesser need for multiple cropping in the granges and this in turn requires effective and time saving machines.. In homemade sowing, it isn't possible to achieve uniformity in distribution of seeds. In this current generation utmost of the countries don't have professed man power in the agrarian sector. Due to that reason we're introduced the semi-automatic seed feeding vehicle it involves all the agrarian conditions like plough, seed feeding as per the distance operated by simple chain medium, furrow closer. This vehicle is analogous to the tractor but the cost wise, capacity wise different this vehicle available all the growers with low cost. So, this design helps to minimize the mortal trouble involved in colony and save the time. This machine will give the perfect colony with lower trouble. In India there are 70 people dependent on husbandry. Seed has been an important agrarian commodity since the first crop factory was domesticated by pre-historic man.

The colony of seeds is automatically done by using DC motor. It's also possible to cultivate different kinds of seeds with different distance. Therefore we need to make proper design of the husbandry machine and also selection of the factors is also needed on the machine to suit the requirements of crops. Hence there's need of developing such a machine which will help the planter to reduce his sweats while planting. This process of using machines is called as robotization. Along with robotization robotization also helps to increase the efficacity of the process. Then's the block illustration of the machine and working of it. It also tells the tackle perpetration, selection of factors and regulators. This system is nothing but 4wheel robot system on which seed tank, sowing medium and metering device is installed to turn it into automatic operated vehicle. This composition represents the advanced system for perfecting the agrarian processes similar as civilization on ploughed land, grounded on robotic backing. The machine will cultivate the ranch by considering particular column at fixed distance depending on crop.



International Research Journal of Modernization in Engineering Technology and Science (Peer-Reviewed, Open Access, Fully Refereed International Journal)

Volume:04/Issue:04/April-2022

Impact Factor- 6.752

www.irjmets.com

II. DESIGN METHODOLOGY

In our attempt to design a special purpose machine we've espoused a veritably a veritably careful approach, the total design work has been divided into two corridor substantially;

- System design
- Mechanical design

System design substantially concerns with the colorful physical constraints and ergonomics, space conditions, arrangement of colorful factors on the main frame of machine no of controls position of these controls ease of conservation compass of farther enhancement; height of m/ c from ground etc.

In Mechanical design the factors are orders in two corridor.

• Design corridor

• Corridor to be bought.

For design corridor detail design is done and confines therefore attained are compared to coming loftiest dimension which are readily available in request this simplifies the assembly as well as post product servicing work.

The colorful forbearance on work pieces are specified in the manufacturing delineations. The process maps are set & passed on to the manufacturing stage. The corridor are to be bought directly are specified & named from standard canons.

Design consists of operation of scientific principles, specialized information and imagination for development of new or extemporized machine or medium to perform a specific function with maximum frugality & effectiveness.

Hence a careful design approach has to be espoused. The total design work, has been resolve up into two corridor

- System design
- Mechanical Design.

• System design substantially concerns the colorful physical constraints and ergonomics, space conditions, arrangement of colorful factors on main frame at system, man machine relations, No. of controls, position of controls, working terrain of machine, chances of failure, safety measures to

be handed, servicing aids, ease of conservation, compass of enhancement, weight of machine from ground position, total weight of machine and a lot further.

The major corridor which are used in machine as given below

A) Frame

- B) Ball bearing
- C) Shaft
- D) Hooper
- E) Chain drive
- F) Sprocket and pulley.

A) SEED SOWING MECHANISM: The cells are designed similar that the angle between one cell to another is 15degrees, similar that the seeds are placed at every 10 cm apart. However, also near every indispensable cells similar that the seeds are placed at every 20 cm piecemeal and near two indispensable cells similar that the seeds are placed at every 30 cm piecemeal, If there's need of altering the distance between one factory to another factory. This medium is the only medium in which all type seed to seed civilization is possible and able of operating under colorful seed distance specification. Ending of the cells can be done by using any simple vid or cataplasm.



International Research Journal of Modernization in Engineering Technology and Science (Peer-Reviewed, Open Access, Fully Refereed International Journal)



B) BALL BEARING :

A ball bearing is a type of rolling- element bearing that uses balls to maintain the separation between the bearing races. The purpose of a ball bearing is to reduce rotational disunion and support radial and axial loads. In utmost operations, one race is stationary and the other is attached to the rotating assembly. Because the balls are rolling they've a much lower measure of disunion than if two flat shells were sliding against each other. Ball comportments tend to have lower cargo capacity for their size than other kinds of rolling element comportments due to the lower contact area between the balls and races. Still, they can tolerate some misalignment of the inner and external races.



C) SHAFT

A shaft is the element of a mechanical device that transmits rotational stir and power. • It's integral to any mechanical system in which power is transmitted from a high transport, similar as an electric motor or an machine, to other rotating corridor of the system. DIA. 12 mm.

D) HOOPER :





International Research Journal of Modernization in Engineering Technology and Science

(Peer-Reviewed, Open Access, Fully Refereed International Journal) Volume:04/Issue:04/April-2022

Impact Factor- 6.752

www.irjmets.com

This is seed collecting device in which we initially collect the seed which we used for cultivation in land E) CHAIN :

Chain drive is a way of transmitting mechanical power from one place to another. It is often used to convey power to the wheels of a vehicle, particularly bicycles and motorcycles. It is also used in a wide variety of machines besides vehicles.



CHAIN DRIVE

CHAIN LENGTH : 5 FOOT

F) SPROCKET :

A sprocket or sprocket-wheel is a profiled wheel with teeth, or cogs, that mesh with a chain, track or other perforated or indented material.^{[5][6]} The name 'sprocket' applies generally to any wheel upon which radial projections engage a chain passing over it. It is distinguished from a gear in that sprockets are never meshed together directly, and differs from a pulley in that sprockets have teeth and pulleys are smooth.



Big sprocket : No of teeth =44 Dia. = 180 mm Small sprocket : No of teeth = 19 $Dia_{1} = 80 \text{ mm}$

III. **APPLICATION**

- 1) This project is mostly used in the agriculture purpose for multipurpose operation
- 2) This project is used to vegetable firm
- 3) This project is used for gardening purpose

ADVANTAGES:

- 1) It increased the productivity of the agriculture
- 2) It reduced the time of sprinkler the pesticide
- 3) The effort required is reduced
- 4) The capacity of the project is more for handling the large quantity of pesticide
- 5) Our project is mostly used in ruler areas where the electricity problem
- No requirement of any A,C, electrical device require for run the project 6)
- Cost of our project is very less 7)
- The output of our project is very large as compared to electrically run pump 8)



www.irjmets.com

International Research Journal of Modernization in Engineering Technology and Science

(Peer-Reviewed, Open Access, Fully Refereed International Journal)

Impact Factor- 6.752

Volume:04/Issue:04/April-2022

IV. CONCLUSION

This project is very good and new concept in the field of agriculture because from this project we can spray, cultivate and sowing the seed the at a time and saving the time as well as effort of the farmer. Also this project is not required any energy to drive the project. This project required the only one man power and saving the cost of the man power. This project increased the productivity of the farmer as well as the agriculture.

V. REFERENCES

Journal Papers:

- [1] Nebojsa simm, 'free energy if oscillating pendulum lever system' Alekse santicqa 47,21000 Novisad, Serbia, published on September 11-2007.
- [2] Jovan Marjanovic ,' the secret of free energy from the pendulum', Veljko Milkovic research & development center Novisad, Serbia, on May 05-2011

Books:

- [3] R.S. Khurmi & J.K. Gupta, Theory of Machines, 14th edition, S. Chand publication, Delhi, 2005,pp (75-86).
- [4] R.S. KHURMI &J.K. Gupta, Machine Design, 1st edition, S. Chand publication.
- [5] Dr. R. K. Bansal, Fluid Mechanics & Hyraulic Machines, 9th edition, Lakshmi publication, Delhi, 2010,pp (993-995).
- [6] Book of machine design by B.D. Shiwalkar.

Websites:

- [7] www.serdar.rs.com http://en.wikipedia.org.in
- [8] http://www.veljkomikovic.com/Docs/jovan marjanovic angular momentum and overunity. P