

THE DEVELOPMENT OF SMART SEED SOWING AND SPARYING AGRICULTURE ROBOT BY USING BLUETOOTH

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ABSTRACT

A seed sowing machine is a mechanical tool designed to automate the process of sowing seeds in agricultural fields. It typically consists of a hopper for storing seeds, a seed metering mechanism, and a distribution system for depositing seeds in the soil. The machine can be operated manually or by a tractor, and it can be adjusted to sow seeds at different depths and spacing to optimize plant growth. The use of a seed sowing machine offers several advantages over manual sowing, including increased efficiency, precision, and uniformity of seed placement. It can also reduce labor costs and enhance the overall productivity of the farming operation.

Keywords – Battery ,Hopper, MS Steel, Seed Sowing Machine, Water Tank

I. INTRODUCTION

Seed sowing is one of the fundamental steps in agriculture, where seeds are sown in soil to grow crops. Traditionally, farmers have relied on manual methods of seed sowing, which are time-consuming and labor-intensive. However, with the advancement of technology, seed sowing machines have been developed to automate this process. These machines have become increasingly popular due to their ability to improve the accuracy, efficiency, and productivity of the sowing process.

A seed sowing machine is a mechanical device that can sow a variety of crops, including grains, vegetables, and fruits. It is designed to handle different types of seeds and can be easily adjusted to sow seeds at the desired depth and spacing. The machine can be operated manually or with a tractor, depending on the size of the field and the type of crops being grown.

In recent years, there has been a significant increase in the demand for seed sowing machines due to several factors, including the growing need for sustainable agriculture practices, the need to reduce labor costs, and the need to improve productivity. With the use of seed sowing machines, farmers can increase their crop yields, reduce seed waste, and minimize soil erosion.

Overall, seed sowing machines have become an essential tool in modern agriculture and have

contributed significantly to the improvement of agricultural practices. This report will provide a detailed overview of seed sowing machines, including their design, operation, advantages, and limitations.

I. PROPOSED SYSTEM

The proposed system for a seed sowing machine includes the following components:

1.1 SEED METERING MECHANISM

The seed metering device is in charge of controlling how many seeds are distributed from the hopper. The quantity of seeds deposited in the soil can be managed by adjusting this process.

1.2 HOPPER

The hopper is a container that holds the seeds that will be sown. Depending on the size of the field and the type of crop being planted, the hopper size may change.

1.3 DISTRIBUTION SYSTEM

The distribution system is responsible for depositing the seeds in the soil at the desired depth and spacing. This system can be configured with different types of seed tubes, seed plates, or other devices to distribute the seeds evenly.

1.4 DEPTH CONTROL SYSTEM

The depth control system is responsible for adjusting the depth at which the seeds are sown. This system can be adjusted depending on the type of crop and soil conditions.

1.5 POWER SOURCE

The seed sowing machine can be powered by a tractor or a standalone engine. The power source is responsible for driving the machine's components, such as the seed metering mechanism and the distribution system.

1.6 WHEEL

A wheel is a round object with the ability to rotate on its axis, allowing for easier mobility, transportation, or work in machines. Friction is reduced by a wheel and an axle by enabling rolling motion. Wheels must have a moment imparted to them about their axes in order to rotate, whether from gravity or another external force. Applications related to transportation are typical examples. In a broader sense, the phrase is also applied to various circular rotating or turning objects, such as flywheels and ship's wheels.

1.7 STORAGE TANK

Storage tank is used to store the seed on it. The inside of the storage tank have a seed stopper. The storage tank has a large open on its top side. And the bottom sides have a correct size of open same as seed stopper dimension

1.8 SEED STOPPER

The seed stopper is used to stop the seed in correct time on seed sowing the seed stopper is connected to the flat face follower and it is guided to the help of guide way. The cam is used to control the up and down movement of the seed stopper in this equipment.

1.9 CONTROL SYSTEM

The control system is responsible for controlling the operation of the seed sowing machine. This system can be configured with sensors to monitor the seed flow rate, soil moisture, and other parameters.

The proposed system for a seed sowing machine can be adjusted to suit different crop types, soil conditions, and field sizes. The use of a seed sowing machine can significantly improve the

accuracy, efficiency, and productivity of the seed sowing process, leading to higher crop yields and reduced labor cost

I. DESIGN CALCULATION

- Slider crank mechanism

Cam Diameter = 60mm

N = 45rpm

Find ω (angular velocity)

$$\omega = 2 \pi N/60$$

$$\omega = 2 * 3.14 * 45/60$$

$$\omega = 4.71 \text{ radian/sec}$$

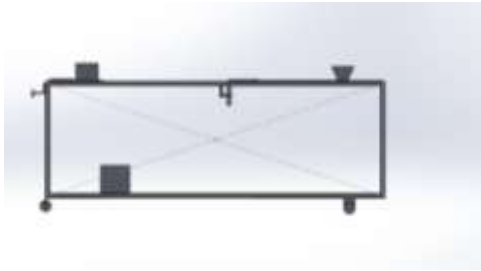
III. ISOMETRIC VIEW OF SEED SHOWING MACHINE



Figure-1

Its straight forward design consists of four wheels that are utilized to physically operate the machine. It has two wheel shafts, one of which is fixed in the front and the other at the back. The back wheel supporting shaft has pockets where the bearings are soldered, as seen in fig. Chain drive connects the sprocket to the cam shaft. The pocket rotates when we move the setup. The cam shaft, which is positioned to the base, will turn as a result. By moving in an upward and downward motion, the flat face follower goes along the cam path. The flat face follower goes upward and the seed stopper begins to open when the cam reaches its maximum diameter, at which point the seed is sown on the ground. It is more effective and simple to use

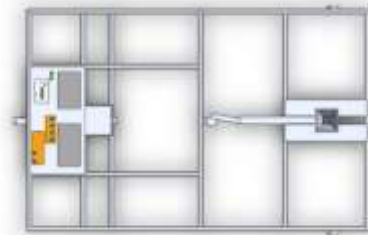
ORTHOGRAPHIC VIEW OF 3D SEED SOWING MACHINE



FRONT VIEW
Figure-2



RIGHT VIEW
Figure-3



TOP VIEW
Figure-4

TABLE 1.1

S.NO	NAME OF THE PART	SPECIFIATIONS
1	Battery	Weight : 2kg Outputpower:12v4.5amps Current : 1 to 1.5 amps

TABLE 1.2

S.NO	NAME OF THE PART	SPECIFIATIONS
1	Motor	Weight : 1kg Operating voltage:12v Operatingcurrent:2amps Motor speed:60rpm

TABLE 1.3

S.NO	NAME OF THE PART	SPECIFIATIONS
1	Water tanks	Length : 115mm Height : 120mm

Table 1.4

S.NO	NAME OF THE PART	SPECIFIATIONS
1	Trucked square pyramid tank	Top = 100 mm sq Bottom= 20 mm sq Height = 95 mm

IV .CONCLUSION

In conclusion, a seed sowing machine is a valuable tool in modern agriculture that offers numerous benefits over manual seed sowing. The use of precision seed sowing technology, such as a seed sowing machine, can improve the accuracy and uniformity of seed placement, leading to higher crop yields and reduced seed waste. The efficiency and productivity of the seed sowing process can also be improved with the use of a seed sowing machine, resulting in cost savings for farmers.

- I. The design and operation of the machine can be adjusted to suit different crop types, soil conditions, and field sizes, making it a versatile tool for agricultural production. Moreover
- II. The use of seed sowing machines can contribute to more sustainable agriculture practices by reducing soil erosion and minimizing seed waste.
- III. Overall, the adoption of seed sowing machines can help farmers to increase their productivity and profitability while contributing to the sustainable development of agriculture.

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