

SOLAR OPERATED SEED SOWING MACHINE

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ABSTRACT

With the increasing levels of technology, the effort is being put to produce any kind of work that has been continuously decreasing. The efforts required in achieving the desired output can be effectively and economically decreased by the implementation of better designs. Power crews are used to convert rotary motion into reciprocating motion. An object lifting jack is an example of a power screw in which a small force applied in a horizontal plane is used to raise or lower a large load. In this fabricated model an electric motor will be integrated with the object lifting jack and the electricity needed for the operation will be taken from the D.C. battery and there by the mechanical advantage will be increased.

I. INTRODUCTION

In this world Cropping is important activity for any farmer but during this activity required some labour that why this activity becomes lengthy. Thus agriculture machines were developed to simplify, eliminate 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 farmer. This also limited the size of field that can be plant. Hence for achieving best performance from a seed planter the above limit should be optimized. Thus we need to make proper design of the agriculture machine and also selection of the component is also required on the machine to suit the need of crops. The agriculture is the backbone of all whole world and also for sustainable growth of India development of agriculture play vital role.

The India has huge population country and day by day it is growing thus demand of food is also increasing. In agriculture we saw various machines. Also, there are traditional methods there. Since long time ago in India traditional method is used. Also, India is the base of 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 more time for planting and that's why increase labour cost. But time available is less for him. Thus, it requires more manpower to complete the task within stipulated time which is costlier. Also, more wastage happens during manual planting. Hence there is a need to develop such a machine which will help the farmer to reduce his efforts and labour cost while planting. This process of using machines is called mechanization. Along with mechanization automation also helps to increase the efficacy of the process. Here is the block diagram of the machine and working of it. It also tells the hardware implementation selection of component and controllers.

This system is nothing but a 4-wheel robot system on which a seed tank, sowing mechanism and metering device is installed to turn it into an automatic operated vehicle. This article represents the advanced system for improving the agricultural processes such as cultivation on ploughed land, based on robotic assistance.

We developed a vehicle having four wheels and operated by DC motor. The machine will cultivate the farm by considering particular columns at fixed distance depending on crop. In Indian farms generally two types of spray pumps are used for spraying, hand operated spray pump and fuel operated spray pump, which hand operated spray pump is most popular. The main drawback of hand operated pray pump is that the user can't use it for more than 5-6 hours continuously as he gets tired after some hours where as fuel operated pray pump requires fuel which is expensive and availability of fuel is not easy at rural places. At the same time, it exhausts carbon dioxide as pollutant which is harmful to our environment.

Also, use of other pesticide pumps causes fatigue. In such a situation we should think to move toward some non-conventional energy. Considering it, solar energy would be one of the solutions. Solar energy plays an important role in drying agriculture products and for irrigation purposes for pumping the well water in remote

villages without electricity. This technology on solar energy can be extended for spraying pesticides, Fungicides and Fertilizers etc., using solar sprayers.

II. METHODOLOGY

1. In this machine a solar panel is used to consume solar energy and this energy is converted into electrical energy. The electrical energy is stored inside a 12V battery of capacity 8 Amp Hour, which then gives the necessary power to DC motor. This power is then transmitted to the cutter through belt and pulley system.
2. Due to the shear deformation created by the cutter's teeth, the farm field will be ploughed to create a furrow for the unsown seeds.
3. Seed hopper rotate due to the friction between ground and surface of the hopper. Ground contact generates the torque for rotation. Seeds will be dropped on the ground from the holes due to their own weight.
4. The basic objective of sowing operation is to put the seeds in rows at desired depth, to maintain seed to seed spacing and to cover the seeds with soil and provide proper compaction over the seed. The recommended row to row spacing, seed rate, seed to seed spacing and depth of seed placement can vary from crop to crop and for different agro-climatic conditions to achieve optimum yields. Typical application of seed sowing of Cereal's including ground nut, all types of dal' soil seed. These solar powered seed sowing machine basically works upon the principle of vertical discontinuous work principle.

Principle used:

Crop's etc. [6] 5) To put the soil back on the seeds, an adjuster is used.

VERTICAL- DISCONTINUOUS WORK PRINCIPLE: the vertical movement which can be followed by an individual body in an agricultural field and implements its discontinuous action in relation to the horizontal line of work. As per name implements this machine is used for sowing the seeds. With more efficiency and in less time than the sowing by traditional processes.

This machine has very less cost. This planter is very simple to use hence, unskilled farmer is also able to handle this machine. We simplified the design also made it cheaper and affordable to every rural farmer. We made various adjustments and simplified it from controlling and maintaining point of view. In this design we connected drive shaft to metering mechanism which eliminates the attachments such as pulleys and belts system. DC motor drives the shaft of motor which is coupled with battery bank. As motor starts it moves this body as well as operates the metering mechanism. Seed storage tank is connected at the top of the sowing near rear wheels.

Also the sowing process does smoothly.

Reaches at other end and when it completes task it creates.

III. MODELING AND ANALYSIS

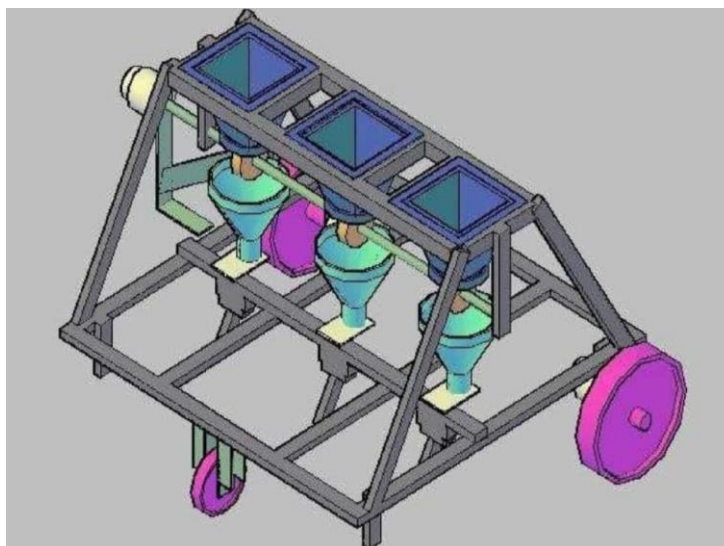


Figure 1: 3D view solar panel seed sowing machine.

IV. RESULTS AND DISCUSSION

The result obtained from these new method of forming is required less labour for handling this machine and also reduce labour cost and eliminate human effort. Increase food production quality as compare to old method manually Farming. Reduced the time of sowing. This method – doesn't create a population no need any fuel his work on Solar energy.

V. CONCLUSION

Innovative seed sowing equipment 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 reduce lot of laborer cost. It is very helpful for small scale former. After comparing the different method of seed sowing and limitations of the exiting machine, it is concluded that the this solar powered seed sowing machine can

1. Maintain row pacing and controls seed rate.
2. Control the seed depth and proper utilization of seeds can be done with less loss.
3. Perform the various simultaneous operations and hence saves labor requirement so as labor cost labor time and also save lots of energy.
4. It is easily affordable by farmers. So, we feel that this project serves something good to this world and we would like to present it before this prosperous world.

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