IMPLEMENTATION OF SEED SOWING MACHINE USING MICROCONTROLLER

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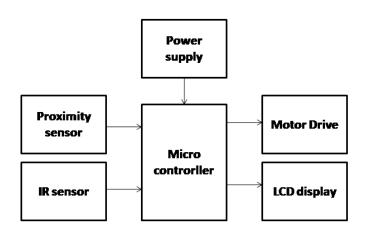
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Abstract- **In Today era rapid growth of agricultural sector requires the advance technologies in the process of sowing, cropping, cutting& irrigation. In the farming process, conventional seeding operation consuming more time and increased labor cost. To reduce the time required for the total operation automated seed sowing machine is developed. Seed sowing machine detects the level of storage seed and any obstacle comes in the in-front of machine can detect this obstacle very easily. It will increase the overall crop production and the system can work efficiently.**

I. INTRODUCTION

Agriculture is an important occupation of rural Indian people which determines the backbone of the Indian economy. In agricultural sector man power is poor and it affects the growth of the country. Also farmers face the problem of non availability of tractors during the peak period of sowing. In order to save the farmer's time, it is important to develop the method of automation which not only saves the time but also saves his efforts. Automated seed sowing is an important task for farmer during the plantation seasons. In traditional period more number of workers required for sowing the seeds[2]. We cannot expert accurate results for traditional method sowing seed is done by hands which gives seed placement in differential spaces. This automated seed sowing machine which can perform simultaneous operations. In this model seed sowing process is reduce the human effort and increase the crop yield. In this proposed method the microcontroller controls the distance between two seeds and the plantation of seed is performed by the DC motor.
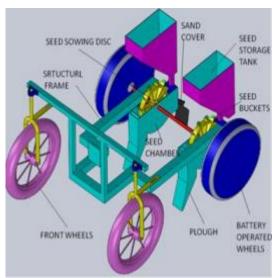
II. PROPOSED METHOD

The proposed method of automated seed sowing machine the motor is selected with high rpm as well as less costly dc motor which calculated the Power and torque as per our requirement. Spur gear design and selection. Calculate forces on teeth of helical gears, including impact forces associated with velocity and clearances. Step 1. Determine allowable force on gear teeth, including the factors necessary due to angle of involute of tooth shape and materials selected for gears. Step 2. Design actual gear systems, including specifying materials, manufacturing accuracy, and other factors necessary for complete helical gear design. Step 3. Understand and determine necessary surface hardness of gears to minimize or prevent surface wear. Step 4. Understand how lubrication can cushion the impact on gearing systems and cool them. Step 5. Select standard gears available from stocking manufacturers or distributors. Step 6. In which calculated the Diametric Pitch (P) - Pitch circle Diameter (PCD) and the Number of Teeth (N).

Seed sowing disc and Seed bucket. S The main purpose of this disc is to dropping the seeds into the field. Description- From the surveys to calculate the distance between two seeds, we have make conclusion that the approximate distance between two seeds is normally 2.5 to 3 inches. So,we decided to make the distance according to that calculation as follows

Metering Mechanism Seed metering mechanism is fitted at the bottom of the seed box to allow the desired quantity of seed. It consists of seed disk, cover of seed disk, seed tube and seedholes.

B) Seed Metering Disc It consists of flat rod. It is bent and welded to circular shape. It has 8 holes around the circumference of the circle at equally spaced distance and it is used for sowing beans. The same circular rod having 5 holes equally spaced in its circumference can be used for sowing maize. The seed disc is fixed on the shaft of the ground wheel so that the motion of ground wheel provides the motive force for rolling of the seed disc. Fig No.02:- Seed Metering Disc C) Seed Holes on the Metering Disc The holes are drilled on the circumference of the disc. The function of the hole is to collect the seeds from the hopper and transport it to seed pipe. The holes are in the shape of a cup.

Step 1.
The LCD panel is initialised and programmed to ask for the input values.
Step 2.
Now, the inductive proximity sensor is called to check and complete the provided instruction.
Step 3.
The relays are controlled and hence the dc wiper motors for displacement of the robot.
Step 4.
In each above step the IR sensor function is called and checked for any interruption.
Step 5.
If found anything it instructs the robot to stop until the interruption is cleared.
Step 6.
Finally, the robot stops after completion of the task

Working.

The LCD display asks for number of rotations the wheel should move in straight and right path simultaneously.
Step 2.
As the data is provided, the rotations of the wheels is sensed by inductive proximity sensor.
Step 3.
 The main drive is given through 12v dc wiper motor which is having low torque and higher RPM.

Step 4.

The two spur gears rotates speed decreases and torque increases.

Step 5.

Then the motion is transferred to shaft and finally wheels.

Step 6.

As the wheels rotates the seed dropping disc also rotates as it is attached with the shaft

Step 7.

The plough are make furrows in the soil at the same time the seeds are placed in the field.

Step 8.

The distance between two seeds is calculated.

Step 9.

In case any obstacle is detected in the defined path of the robot IR sensor senses it and the robot pauses until path is cleared.

III. CONCLUSION

This seed farmstead instrument has great probable for expanding the fertility of the plantation. In farming, tractor was the main instrument in farming with the adaptation of this seed planting instrument farmers can be benefited. Thus it is essential to promote this kind of technology and make it available tosmall scale farmers with affordable valuation. Hence design canmanufactured using staple sources which minimizes the product amount and conveniently available in open markets. Only we need to purchase IR sensors and metering device. Finally we conclude that this machine is malleable and this device can perform the same function for various seeds.

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