EMBEDDED BASED AUTONOMOUS SEED SOWING ROBOT

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Abstract: A seed sewing machine is a device that sows the seed by positioning them in the soil and covering them to a certain depth. The basis requirement of the seed sowing machine is that it should be suitable to all farms and all types of crops. The construction of this machine should be robust. Thus this paper proposes the construction of sowing machine that reduces the efforts of the farmers. This machine is operated manually and has increased efficiently and accuracy. The seed to seed spacing, seed rate and depth of seed placement may vary from crop to crop for different agro. Climatic conditions to achieve optimum yields. This machine renders a great help in achieving these condition to get the yield. The proposed design is so cheap and usable for small scale farmers. The design is so much simplified that it could be handled by any farmers or untrained workers.

1. INTRODUCTION

The agriculture is always the backbone of India. The demand for production increase as the population increases. Hence, there is a greater need for multiple cropping that requires efficient and rime saving machines. There are also a traditional methods used in India. As India has huge man power the manual planting is popular in villages of India. But this method is very troublesome for large scale area. The time required for planting is much more compared to smaller areas and thus required man power to complete the task in stipulated time which is costlier.
More amount of wastage happens during manual planting. Cropping is tedious activity for any farmer and for large scale this activity is so lengthy and also required more workers. Thus agriculture machine was developed to reduce human effort. Sow of the seeding equipment's are,

- Rotary dibbler.
- Manual oil seed drill.
- Manual seed and fertilizer etc.

2. EXISTING METHOD

In traditional method of seed planting we have following limitation.

1. In manual seeding, it is not possible to achieve uniformly in distribution of seeds.
2. A farmer may achieve the desire seed rate but inter and intra row distribution of seeds is likely to be uneven.
3. Poor control over depth of seed placement.

Thus we need to make the proper design of the agriculture machine.
The process of using machine is called Mechanization. Along with mechanization automatic helps to increase the efficiency. This paper proposes the hardware implementation, selection of components and controller of the four-wheel robot's system on which seed tank, sowing mechanism is installed to turn it into the automatic operated vehicle.

2.1 FACTORS AFFECTING SEED EMERGENCE

Factors that affect seed germination are,

1. Depth with regard to the placement of seed.
2. Uniform distribution along the rows.
3. Transverse displacement with regarded to the row.
4. Loose soil setting.
5. Uniform coverage of soil over the seed.
6. Mix-age of fertilizer.

The above factors help to get best performance of the seed drill or planter. To improve the performance, we need to optimize the above factors to get the desired efficiency from the system in economical way.
The design is simplified and components are selected to suit the need of crops. The working of the seed drill plays a vital role in maintaining the system environment. The system serves the need that the seen should not be damaged while working.