ISSN (O) 2321-2004 ISSN (P) 2321-5526

IJIREEICE

International Journal of Innovative Research in
Electrical, Electronics, Instrumentation and Control Engineering

Vol. 9, Issue 12, December 2021

DOI: 10.17148/IJIREEICE.2021.91207

Design and Fabrication of Seed Sowing Machine by using Electro-Pneumatic System

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Abstract: India is an agricultural country cultivating more number of ground nuts, corns, etc., in the village sides of the country. The available sowing machines are imported from foreign countries. The imported machines are not only bulk in size but cost also very high. In this proposal an attempt has been made for the design and fabrication of maintenance free seed sowing machine exclusively for farmers at low cost. The different components of above multipurpose seed sowing machine are modelled using one of the end parametric modelling software Solid Works and it was simulated by the software Automation Studio. The modelled components are fabricated and assembled together to form a complete machine. The electro-pneumatic action is a control system for pipe organs, whereby air pressure, controlled by an electric current and operated by the keys of an organ console, opens and closes valves within wind chests. This method is used for seed sowing technique. According to the cylinder controlled action seed will show in the land. Here we are using cascade method for cylinder control. This method is very useful for short term and long term crops. In cascade method, we are use only four sequence for seed sowing those are A+, B+, B-, A-. Due to hopper open and close condition seed will easily have sowed in land.

Keywords: Pneumatic, Solid works, Automation studio, electro-pneumatic, sowing machine.

I. INTRODUCTION

Even through many apparatuses are used for seed sowing purpose, pneumatic seed sowing machine is a one of the good sewing machine in industries. It is mainly use for long level area seed sowing. Many advantages are in pneumatic seed sewing machine, we discuss briefly. The production and productivity of ground nuts, corns, etc., were quite low, when India because independent in 1947. The production was not sufficient to feed the Indian population. The country used to import them in large quantities for fulfilling the need of our people from many countries. The reason of low production and productivity were unavailability of machine in the cultivation field. In India most of the farming work is done manually when compared with foreign countries. There was no machine for sowing the seed like groundnuts, corns then and it is done by man power only.

The cost spent for manpower was more and the speed of the operation was very less. When small farmers with minimal physical resources or financial assets attempt to improve their productivity, they have a limited choice. The only resource they can maximize is knowledge in which they are not poor. To prove they can statement, Mr. Shivraj was invented the first bullock driven sewing machine in the year 1987 at Madhya pradesh to improve his productivity. It was light weight and can perform up to six agricultural operations. India is a world leader in groundnut farming with 8 million hectare of cultivated area in the year 2003. Groundnut cultivation has increased from 6.8 million hectares in 1980 to 8 million hectare in the year 2003. Groundnut is grown mostly in five states namely Andhra Pradesh, Gujarat, Tamilnadu, Karnataka, and Maharashtra and together they account for about 90 percent of the crop total. The sowing time is the most important non-monetary input influencing productivity. Delay in sowing by one-week result in considerable yield losses

Result obtained from all India coordinated research's revealed that in most parts of the country, sowing should be done between the first week of June and the last week of July, Advancement of sowing by a fortnight with pre-sowing irrigation was found to increase the yield substantially. The government of India appointed a commission to assess the feasibility of increasing the crop productivity under prevailing India ecological conditions. In order to develop the standard of living of small farmers we should make the machine with low cost. Then only small farmers can implement the recent modern machines for farming purposed multipurpose sewing machine is used to sowing different types of seed like groundnuts, corns, etc. so in this work an attempt has been made to provide the multipurpose sewing machine at low cost.