Automatic Onion Transplanter

SUYOG RAJESH KORDE[1], DEEPAK KUMAR RAMMILAN VERMA[2], SATYAM MANGESH SAWANT[3]

[1, 2, 3] *Pillai HOC College of Engineering and Technology*

Abstract- Agriculture has always been the backbone of India for a long time. The states like Maharashtra, Punjab, Kerala and Assam are highly involved in agriculture. It all started due to the impact of, \Green Revolution" by means of which farmers came to know about the various techniques involved in farming and the advantages in it. In Modern world, Automation robot is used in many of the _elds such as defense, surveillance, medical _eld, industries and soon. As centuries passed, certain modern techniques were invented in agriculture due to the progress in science. Agro-Technology is the process of applying the technology innovation occurring in daily life and applying that to the agriculture sector which improves the e_ciency of the crop produced and also to develop a better Mechanical machine to help the agriculture _eld which reduces the amount and time of work spent on one crop. Hence in this work of project we decided to design a better mechanical machine which is available to the farmers at a cheaper rate. The main purpose of our project is to provide a_ordable, compact, multi-purpose solar based robot to farmers for their agricultural use. It is battery based Multi-tasking Robot which performs various operations such as digging, transplanting and pesticides spraying in farms. Its controlling is done by wi_ module which makes it user
friendly as well.

I. INTRODUCTION

An automated transplant an agricultural machine used for transplanting to the soil _eld. This is very important as it reduces the time taken to transplant (when compared to manual transplanting), thus allowing more time for harvesting. it also reduces the use of manual energy. Transplanting and planting vegetables in traditional way, is of hard job and ine_-cient activity. In addition, harvesting of prior crop and preparation of the substrate and transplantation should be done in a period of short time in doubled planting which by doing conventional way of transplantation, it would be hard. These factors show the need for mechanization of transplantation even more than before. Labour costs and the di_erence in depth of planting seedlings are of other factors that make the mechanical transplanting of vegetables seeding necessary. The introduction of the modular seedlings in greenhouse trays makes it possible to produce good quality uniform seedlings in an orderly array that could possibly be set in the _eld by machine. Modern farms are expected to produce more yields with higher quality at lower expenses in a sustainable way that is less dependent on the labor force the idea of applying robotics technology in agriculture is very new. In agriculture, the opportunities for robot enhanced productivity are immense and the robots are appearing on farms in various guises and in Automatic Onion Transplanter increasing numbers. This battery based multitasking agricultural robot is capable of doing multiple task such as digging, bowing, sowing, spraying pesticides. It uses 12V batteries to power the vehicle movement as well as to the motor. The grass cutter motor, digging motors and even a motor to which a water tank is connected are interfaced with Arduino UNO which controls the working of all the motors. To stabilize the whole agrobot for unequal ground we have _tted suspensions on four wheels. We are using WiFi module by which the vehicle is commanded to Go Forward, Backward, Left and Right,to dig the soil, transplanting onion. The robot is highly capable to do all its work in the e_cient manner by reducing many work times and hard labor.

II. PROCEDURE FOR PAPER SUBMISSION

Agricultural robot is a modern requirement in research area. As today educated people should devote for agriculture and implement technology development. In agricultural sector, more labors are in need. But there are not su_cient workers for this sector. Hence the landlords face problems in the agricultural sector and moves towards the industrial sector causing for

less demand in this sector. This leads to great threats to the future. Also, the farmers are bound to buy di_erent machines and machineries for di_erent purposes in agricultural sectors making it more costly for the farmers. The large quantities of fuel are consumed during production process which leads to large quantity emission of pollutants to atmosphere.

III. HELPFUL HINTS

The basic aim of this project is to develop a multipurpose machine, which is used for digging the soil, seed sowing, and leveler to close the mud and water sprayer to spray water with least changes in accessories with minimum cost. This whole system of the robot works with the battery.

IV. PUBLICATION PRINCIPLES

contain new, useable, and fully described information. For example, a specimen's chemical composition need not be reported if the main purpose of a paper is to introduce a new measurement technique. Authors should expect to be challenged by reviewers if the results are not supported by adequate data and critical details.

CONCLUSION

Our aim was to design a machine which would be easy to use at a low cost which will work as a helping hand for the farmers as its name \Krishan" suggests. We aimed to open a door for the young engineer to solve basic problems of our farmers with the help of technology. Our main aim was to reduce the physical burden of a farmer which they go through by innovative solutions.

REFERENCES

[1] S.Panneerselvam, A.Rakesh, R.Saravana Kumar, S.Saravanan, R.O.Yadunath Gurudeep.\Design and Fabrication of Automatic Onion Planting Machine", International Journal of Innovative Technology and Exploring Engineering (IJITEE) ISSN: 2278-3075, Volume-8 Issue-10, August 2019.

[2] Amrita Sneha.A; Abirami.E; Ankita.A; R. Praveena; R. Srimeena. \Agricultural Robot for automatic ploughing and seeding". 2015 IEEE Technological Innovation in ICT for Agriculture and Rural Development (TIAR), 17 December 2015