Scientific Journal of Impact Factor (SJIF): 5.71

e-ISSN (O): 2348-4470
p-ISSN (P): 2348-6406

International Journal of Advance Engineering and Research Development

Volume 6, Issue 02, February -2019

SEED SOWING ROBOT- A Review

Krunal Gandhi[1], Shubham Patil[2], Mahima Chaudhari[3], Hetal Patel[4], Bhushan Patil[5]

[1]*Department of Electrical Engineering, D.N.Patel COE, Shahada*
[2] *Department of Electrical Engineering, D.N.Patel COE, Shahada*
[3] *Department of Electrical Engineering, D.N.Patel COE, Shahada*
[4]*Department of Electrical Engineering, D.N.Patel COE, Shahada*
[5]*Department of Electrical Engineering, D.N.Patel COE, Shahada*

Abstract — *with agriculture being the primary economic sector of India and other developing countries, it is essential to automate it in order to increase efficiency. A typical farm requires a lot of labour. Automation can proficiently moderate the amount of manual labour, and make farming easier and faster, leading to more agricultural growth. The idea of automation is prolonged to the farm houses and agricultural farms. Many features of the farm are automated, which consist farm products, auto-irrigation cycles, automatic seed sowing and controlled enclosures for livestock [1].*

Keywords- *agriculture; automation; automatic seed sowing; auto-irrigation cycles; livestock.*

I. INTRODUCTION

Seed sowing machine is a gadget which helps in the sowing of seeds in the perfect position consequently helping the agriculturists in saving time and money. The crucial objective of sowing responsibility is to put the seed and seed in lines at needed seed to seed isolating, spread the seeds with soil and give real compaction over the seed. The endeavor discusses different pieces of seed sowing machine which will be helpful for the agribusiness business to move towards automation. The local business has reliably been the establishment of India's proceeded with advancement. As the quantity of occupants in India continues building up, the interest for produce grows moreover. Subsequently, there is an increasingly imperative prerequisite for multiple cutting on the farms and this, accordingly, requires powerful and high-limit machines[2]. Motorization of the Agricultural business in India is still in a period of soonest organizes in light of the nonattendance of data and the detachment of bleeding edge instruments and equipment. In standard techniques seed sowing is done by conveying physically, opening wrinkles by a wrinkle and dropping seeds by hand. The agrarian has reliably been the establishment of India's proceeded with improvement. As the quantity of occupant in India continues building up, the enthusiasm for produce grows as well. From now on, there is a progressively noticeable requirement for various altering in the properties and this, hence, requires beneficial and productive machines[2].

II. LITERATURE SURVEY

"A seed sowing machine: a review" Mahesh r. Pundkarijess volume 3, issue 3. ISSN: 2249-9482, social science and international journal of engineering.
Summary:- stated that in agriculture field seed sowing machine is a important part . For many verities of crops high accuracy pneumatic planters have been developed, resulting to uniform seeds distribution along the travel path, for a large range of seed sizes, in seed spacing[3].
"Frontline demonstration on bullock-drawn planter enhances yield of soya bean crop. Farm science of P.p. shelke international journal 1(2):123-128, 2011.
Summary: - concludes that bullock drawn planters are essential for sowing as the experienced workers for sowing are almost reducing. Plant population and Planting distance are major factors in maximizing the production of crops[4].
"Seed rate on growth and effects of sowing method and yield of wheat".Umedali soomro world journal of agricultural sciences, vol. 5, no. 2, pp. 159- 162.
Summary:- in Pakistan has assessed three sowing strategies and seed rate in a four reproduced RCBD strategy and inferred that boring technique for sowing at seed rate 125 kg/ha is ideal for yield and nature of wheat grains, on the grounds that the said sowing technique and seed rate convey seed consistently and wanted profundity which give proper profundity to seed germination and harvest foundation[5].

III. WORKING OF THE SYSTEM

The system is designed to monitor the various parameters on which the production of the food material in the farm depends. This system consists of a network sensor to monitor surrounding environment and an automatic irrigation system to provide water to the plants and also sow the seeds without human intervention.

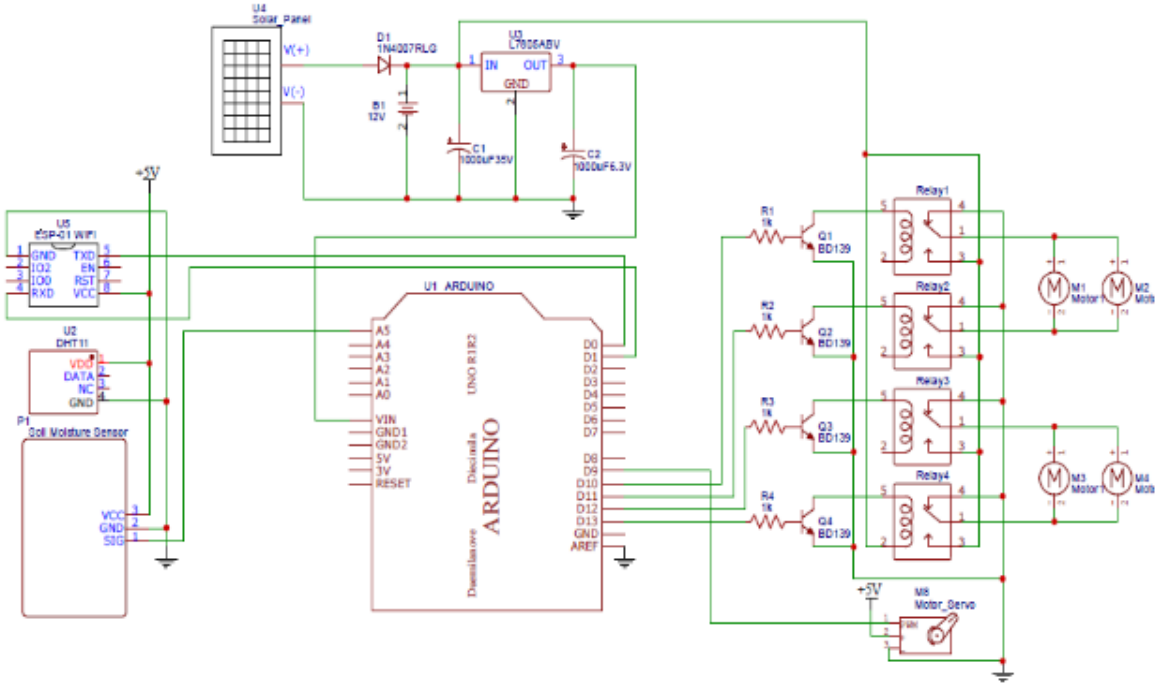

Fig 1. Circuit Diagram for Seed Sowing Robot

This system is designed in such a way that the user can operate it by means of a PC/smart phones and can also monitor all the parameters from this PC/smart phone. In this system we have developed a control window application in visual basic. Visual Basic is a programming situation from Microsoft in which a developer utilizes a graphical UI to pick and adjust preselected segments of code written in the BASIC programming language [6].

The circuit implemented in the farm field for the monitoring purpose consists of a DHT 11 temperature and humidity sensor. This sensor is used to measure the temperature and humidity in the surrounding environment of the farm field. This sensor is interfaced with the microcontroller used in the system. This sensor is interfaced with the microcontroller utilized in the framework. At the point when MCU sends a begin flag, DHT11 changes from the low-control utilization mode to the running-mode, sitting tight for MCU finishing the begin flag. When it is finished, DHT11 sends a reaction flag of 40-bit information that incorporate the relative stickiness and temperature data to MCU. Clients can gather (read) a few information. Without the begin motion from MCU, won't give the reaction flag to MCU. When information is gathered, DHT11 will change to the low-control utilization mode until it gets a begin motion from once more. Microcontroller receives this information from the sensor and sends it to the controlling device wirelessly through Wi-Fi unit interfaced with the microcontroller.

The system consists of a soil moisture sensor used to detect the wetness of the soil in farm fields. The soil moistures sensor also interfaced with the microcontroller. The sensor would outputs logic HIGH/LOW when the moisture is higher/lower than the threshold set by the potentiometer and provides these signals to the microcontroller. Microcontroller then sends over the internet. The user then start the water pumps interfaced in the system to provide water to the farm field. Here we have used a water pump for farm field. To operate the device from the android phone a Wi-Fi modem is also connected with the system, through which the user can send command to the microcontroller and turn ON / OFF the water pump in the system. When the farm field is sensed to be dried the microcontroller then keeps water pump ON and if water is not available in the well the microcontroller will get high signal and immediately turns OFF the water pump [7].

The system is mainly designed for automatic seed sowing to reduce the work and time consumption the farmer. For this we have designed a special mechanism for seed sowing based on dispensing system principle. This mechanism is controlled through microcontroller and performs the seed sowing action at every successive node. If the node is obtained then the robot waits for 10sec and servo action is implemented in that time. Between the two successive nodes i.e. set time interval the flip of the seed sowing mechanism gets closed. And when the time gets completed the flip again opens and seeds will be dropped by the mechanism.

After gathering all the information from the sensor node and getting the status of the sowing mechanism and water pump the data is sent over the internet through Wi-Fi modem in the system. The user gets all the updates in the app designed by using Blynk IoT platform. Though this, the user can operate and monitor all the task done by the designed automatic system for the help of the farmer and to reduce the labor requirement and time consumption due to this hectic work in the farm[8].

IV. ADVANTAGE, DISADVANTAGE, APPLICATION

4.1 Advantages

- It maintains the proper row spacing.
- The seeds can be placed at proper depth.
- Seed rate can be controlled.
- Machine is convenient due to its small size.
- Cost efficient.
- Improve agricultural soil carbon sequestration.
- Higher Accuracy.
- Higher speed.
- Less Man-power require.

4.2 Disadvantages

- Electronics component cannot sustain the vibrations and the high temperature.
- Accuracy should be reduces due to clod and mud.

4.3 Applications

- It is used in farming for seed sowing with fixed separation & more accuracy.
- It can also use for cultivating purpose.

V. CONCLUSION AND FUTURE SCOPE

5.1 CONCLUSION

All perceptions and trial tests demonstrate that this task may be a completed response for field activities and water framework issues. Usage of such a structure in the field can improve the yield of the harvests and large generation. Design and Development of seed sowing agricultural robot is the proposed method which automatically put the seeds based on the servo motor rotation. In this work, ARDUINO UNO is utilized.

The key focuses in end are:

1. It decrease the burden on farmer.
2. Robot will put the seed in to suitable field precisely.

5.2 FUTURE SCOPE

- It should be designed to work with the uneven level to help counter bonding.
- It should be designed to work at any atmospheric conditions.
- It should be designed to do entire cultivating work.

REFERENCES

[1] Drishti Kanjilal, Divyata Singh, Rakhi Reddy, Prof Jimmy Mathew, “Smart Farm: Extending Automation to the Farm”, International Journal Of Scientific & Technology Research, volume 3, Issue 7, July 2014.

[2] Prof. Swapnil Umale, Mr. Ashish Tayade et al,’’Multi seed sowing Machine’’,International Journal of Advance Engineering and Research Development, Volume 5, Issue 06, Page 1-8, April 2018.

[3] Mahesh R. Pundkarijess, “A seed sowing Machine’’,International Journal of Engineering and social Science, Volume 3, Issue 3, ISSN 2249-9482.

[4] P.P. Shelke :-“frontline demonstration on bullock-drawn planter enhances yield of soya bean crop.”International journal of farm science 1(2):123-128, 2011.

[5] Umed Ali Soomro, Mujeeb Ur Rahman, Ejaz Ali Odhano, Shereen Gul, Abdul Qadir Tareen “Seed rate on growth and effects of sowing method and yield of wheat”. world journal of agricultural sciences, vol. 5, no. 2, pp. 159- 162.

[6] Joaquin Guierrez, Juan Francisco et at, “Automated Irrigation system Using s Wireless Sensor Network and GPRS Module’’, IEEE Transactions on Instrumentation and Measurement, Volume 63, No.1, Page 166-176, January 2014.

[7] Ganiyu R. A, Arulogun O.T, Okediran O.O, “Development of a Wireless Sensor Network for Monitoring Environmental Condition on a Farmland’’, International Journal of applied Information System, Volume 7, ISSN 2249-0868, Page 28-34, May2014.

[8] Prof. Jagruti A.Dandge, Rashmi Shirwadkar et at, “Electric Switch ON/OFF System Using Android App Via Wi-Fi’’,International Research Journal of Engineering and Technology, Volume 03, Issue 03, Page 1278-1282, Mar 2016.

