JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

Multipurpose Automatic Agriculture Vehicle

Surabhi Gawali[1] , Somesh Sawardekar[2] , Yash Satam[3] , Mr.Chandraprakash Zode[4]

1New Horizon Institute of Technology and Management, Godbunder Road, Anand Nagar, Thane (West), Thane , Maharashtra

2New Horizon Institute of Technology and Management, Godbunder Road, Anand Nagar, Thane (West), Thane , Maharashtra

3New Horizon Institute of Technology and Management, Godbunder Road, Anand Nagar, Thane (West), Thane , Maharashtra

4New Horizon Institute of Technology and Management, Godbunder Road, Anand Nagar, Thane (West), Thane , Maharashtra.

Abstract **–**

India is an agricultural country wherein 70% of the populations are dependent on agricultural overall performance. but if we see that as the population will increase, the farm is spread out among households, and for this reason, the farmer in India owned on average only acres of farms. additionally economically, farmers are very poor due to which they may be unable to buy tractors and different highly-priced device for this reason they use conventional strategies of farming. essentially, lots of farmers in India also use oxen, horses and buffaloes for farming. this may not cope with the strength wishes of agriculture relative to different countries inside the world. So we're wondering that the efforts of guy and animal may be replaced by using advanced mechanization.

Keyword

Cost Effectiveness; Accuracy improvement; compact design ; esay to operate

Introduction:

Agriculture has been and could remain a monetary cornerstone and it's been the key development inside the upward thrust of settled human civilization. The take a look at of farming is referred to as agricultural technological know-how. Agriculture has a history of heaps of years, and its development has been encouraged and defined by way of very specific climates, vegetation, and technologies. contemporary agronomy, plant development, agro-chemicals consisting of pesticides and fertilizers, and technological advances have in lots of cases significantly elevated crop yields, however in the meantime have caused big ecological harm. Agricultural food manufacturing and water management are increasingly more rising as international demanding situations.

Problem Statement:

The key challenge is to develop a vehicle that requires minimal human intervention. This means incorporating automation and advanced technologies like AI, sensors, and efficient

power systems. By reducing the need for manual labor, the vehicle can optimize productivity and lower labor costs for farmers.

Additionally, the vehicle should prioritize environmental sustainability. It should minimize chemical usage, optimize resource utilization, and reduce soil compaction to promote sustainable farming practices.

Overall, the goal is to create a user-friendly, reliable, and adaptable farming vehicle that can revolutionize the way farming is done. By addressing these challenges, we can enhance farm efficiency, increase productivity, and make farming more accessible and profitable for farmers.

Components

Components used in the Equipment The multipurpose automated agricultural equipment is fabricated using the components listed below.
The specifications of the equipment
. • Frame – It is the structure on which the other components a built. It bears the entire load of the equipment
• Cultivator- Tills the soil to the required depth so the distributer mechanism can sow the seed
. • Belt and pulley drive- For transmission of power from motor to wheels; belt and pulley drive is used in the machine and also to drive seed distributer.
• Storage Tank- Stores water to be sprinkled in the soil and also pesticides for crops. • Hopper - Stores the seeds to be sown in the soil. Higher the capacity less the need to refill the hopper during process.
• Pump- Used to pump the water or pesticide from tank to the sprinkler nozzle.

Factors that Influenced Design and Fabrication of Proposed Equipment:-

• To implement scientific farming methods
• To bring precision in farming activities
• Suitability for all types and sizes of seeds to be sown
• Portability of the equipment: the proposed equipment to be of less weight and be flexible for easy assembly and disassembly.
• To provide low cost equipment for farmers.

WORKING MACHINE

This multipurpose agricultural system is operated by hand & designed and fabricated as multi-motive device used in agricultural methods inclusive of ploughing, seeding, water sprinkling, fertilizing and land leveling. when pushed forward, it ploughs the sector with the resource of a plough. The plough is adjustable in top.
The drum seeder is connected to the front wheel the use of the chain power and seeding will begin with guide movement of the system.
The fertilizer distributor is constant to the rear wheel the usage of the chain pressure and works on the chain-gear mechanism.
The water tank is connected to the water pump that have a single nozzle on it and water can be sprinkled via the outlet of the tap.
As in India 10-20% of farmers are rich however relaxation of farmers doesn't have a lot source to buy heavy gadget and
machines. So, here we've got designed a system that can satisfy basis wishes of farming and charge of system must be very much less in comparison to marketplace

Conclusion:

Agricultural tasks related to farms can be handled by automated machines in a sophisticated and effective way. To meet the issues facing food production in the twenty-first century, farmers can be equipped with cutting-edge, sustainable agriculture through the use of virtual responses in conjunction with IoT and synthetic intelligence. Implementing automated farming equipment can help farmers with

basic agricultural tasks including seeding, watering, pesticide application, and plowing.
• There is enough potential for the automated farming system to enhance crop output.
• The device is made to be a multifunctional farming tool that can be used for multiple tasks at once, such as planting, watering, and applying pesticides.

FUTURE SCOPE:

This machine may be made to alter some of the settings by connecting the sensors to it

- Wi-fi generation will be the control device.
- The device can also be integrated with the tractor.

  We have the ability to upload solar panels for various mechanisms and spraying devices.

Reference:

[1] S. Nithya, Lalitha Shree, Kiruthika and Krishnaveni (2017), "Solar Based Smart Garbage Monitoring System Using IOT," International Journal of Electronics and Communication Engineering and Technology, 8, (pp-75-80).

[2] Sheikh Mohd Shahid MohdSadik and Hussain H.A. (2017), "Design and Fabrication of Multipurpose Farming Machine," International Journal for Science and Advance research in Technology, 3, (pp-35-48).

[3] ChetanPatil, Vishal Deshmukh, ShaileshDeshmukh and GovindRai, ParagBute (2018), "Design and Fabrication of Multipurpose Agro System," International Journal of Current Engineering and Scientific Research, 5, (pp-73-79).

[4] S.S. Katariya, GundalS.S., KanawadeM.T. and Khan Mazhar, "Automation in Agriculture," International Journal of Recent Scientific Research,6, (pp-4453-4456).