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Fabrication of Multi-Purpose of Agriculture Vehicle

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Abstract: ***The main aim of the project is to develop multi-purpose agricultural vehicle, for performing major agricultural operations like ploughing, seeding, & pesticide spraying. The modification includes fabricating a vehicle which is small, compact in size. The project is about a machine design which makes cultivation much simpler. The design of the chassis of the vehicle is made in such a way that it is suitable for the operations. The design for automatic seed sowing equipment is made. The plough is designed and modified the currently available plough tool in such a way that it with stand the load.***
Keywords: Agriculture, Seed-sowing, Pesticding, Ploughing.

I. INTRODUCTION

In the country like India where the main source of income is agriculture. Needs to concentrate in some aspect like how to increase productivity and profit, how to reduce cost and how to solve and ease the problems of workers. There is a shortage of skilled labour available for agriculture. Because of this shortage the farmers have transitioned to using harvesters. These harvesters are available for purchase but because of their high costs, they are not affordable. In India agriculture has facing serious challenges like scarcity of agricultural labour, in peak working seasons but also in normal time. This is mainly for increased nonfarm job opportunities having higher wage, migration of labour force to cities and low status of agricultural labor in the society. In India two type of crop cutting like as manual method (conventional method) and mechanized type of crop cutter. The crop cutting is important stage in agriculture field. Currently Indian former used conventional method for crop cutting i.e. cutting crop manually using labour but this method is very lengthy and time consuming. To design and manufacturing of multi crop cutter which is help to the Indian former which is in ruler side and small farm. It will reduce the cost of crop cutting field. It will help to increase economical standard in Indian former.



Fig 1 Agriculture vehicle

II. WORKING PRINCIPLE

A India is a country where farming is main occupation and culture then also in India most of farmers attempt suicide reason behind this is machine , as in India 10-20% of farmers are rich but rest of farmers don't have much source to purchase heavy equipment and machines. So we have decided to design aagricultural vehicle which can satisfies the basic need of farming and cost of agricultural vehicle should be very less as compared to other agricultural vehicle. The main objective of agricultural vehicle is drilling, fertilizer spraying, seed sowing & ploughing. For solving this purpose we have designed this type of agricultural vehicle

When engine is started the auger bit drill tool will activated to drill hole for seed sowing after that operator press lever for drop a seed from hopper then the digging and sowing operation will be completed. The sowing operation can be done by semi manual. Ploughing tool is easily assemble and dissemble, This operation is done by the manual force.

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III. LITERATURE SURVEY

1) D.A. Mada, Mahai, [2013], In this research paper author has mentioned the magnitude of automation in agricultural field by giving some instance. The conclusion from the paper was need of multifunctional vehicle for pre and post harvesting. We have taken this as base of our research and take further changes in production of our multipurpose agricultural vehicle.
2) V.K. Tewari, A. Ashok Kumar, SatyaPrakash Kumar, BrajeshNare[2012] In this research papers author have done case study on farm mechanization in west Bengal as being part of India it give clear status about availability and progress in India. This ensured us to take right steps compared to current steps.

IV. COMPONENTS

1) *Frame:* A frame is defined as the outside border that holds something in place on all sides The definition of a frame is the general structure that gives a person or thing its shape, or how something is put together. An example of a frame is the bone structure of the human skeleton.



Fig 2.0 Frame

2) *Tyres:* A thick rubber ring, often filled with air, that is fitted around the outer edge of the wheel of a vehicle, allowing the vehicle to stick to the road surface and to travel over the ground more easily.



Fig 2.1 Tyre

3) *Sowing Box:* A box for storing seeds until they are ready for planting. A box for growing seeds till they are ready to be transplanted. Seeds should be sown in a seed box or seed tray.



Fig 2.3 Sowing box

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4) Water Tank: A *water tank* is a container for storing water. *Water tanks* are used to provide storage of water for use in many applications, drinking water, irrigation agriculture.



Fig 2.4 water tank

V. ADVANTAGES

A. Includes scientific forming techniques, sequence spacing & seed sowing machine has more.
B. Suitable for all types of seed to seed farming.
C. Multi-tasking both sowing & fertilizing done simultaneously.
D. Initial investment is less.
E. Reduce labors because of automation.
F. Reduce time consumption.

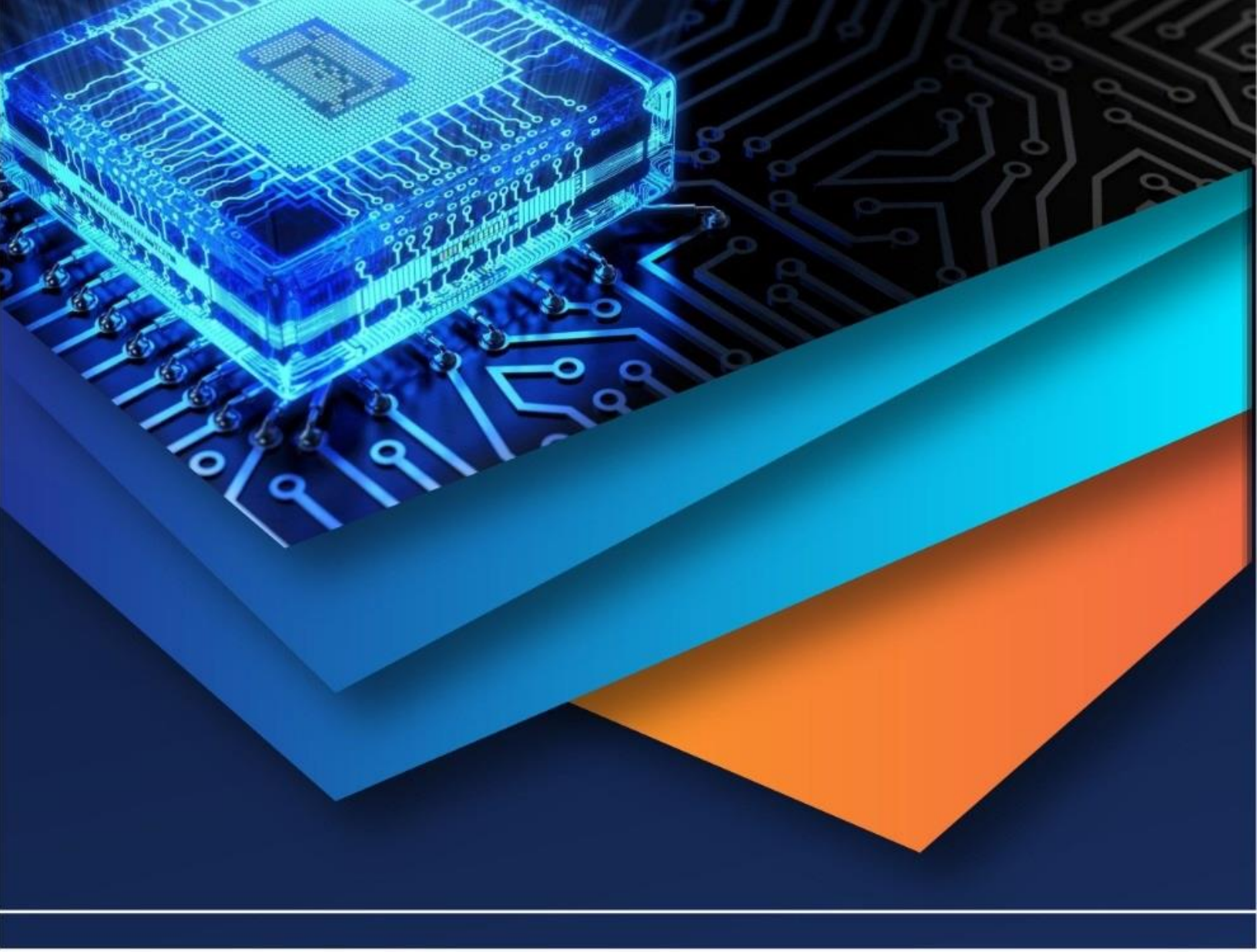
VI. CONCLUSION

Practically our multi-purpose vehicle agriculture equipment can be used for ploughing, sowing and pesticide spraying purposes. All the parts are connected such a way that in every stage of agriculture the equipment can be rearranged or easily assembled with fastener to required length and specifications of field operations. Our team has successfully combined many ideas from various fields of mechanical engineering and agriculture knowledge to improve the yield and reducing the labor effort and expenses. The whole idea of multi-purpose equipment is a new concept, patentable and can be successful.

REFERENCES

[1] R. Sadiq, S. Gopalakrishna,"Design and fabrication of multipurpose agricultural equipment", International Journal of Advances in Production and Mechanical Engineering,1,(2015),38-45.
[2] Kannan, K. Esakkiraja,"Design modifications in multipurpose sowing machine", International Journal of Research in Aeronautical and Mechanical Engineering,2,(2014),35-40.
[3] D. Ramesh, H. Girishkumar,"Agriculture seed sowing equipments: A review international journal of science", Engineering and Technology,(2014) 1987- 1992.
[4] T. Sambouli, N. Zapata,"Performance of new agricultural impact sprinkler fitted with plastic nozzles", Biosystems Engineering,118,(2014),39-51.
[5] P. Vijay, K. Rakesh,"Design of a multi-purpose seed sower cum plougher", International Journal of Emerging Technology and Advanced Engineering,3,(2013),1-8.
[6] K. Hao, Z. Ripin,"Nodal control of grass trimmer handle vibration", International Journal of Industrial Ergonomics,43,(2013),18-30.
[7] Girish, S. Satyavrath,"Design and fabrication of multipurpose farm equipment" ,Automotive and Aeronotical Engineering,1,(2012),0-1.

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