

# Fabrication of Advanced Real Time Multipurpose Agriculture Vehicle

Mutturaj<sup>1</sup> Shivaraj D.<sup>2</sup> Lankesh<sup>3</sup> Sudhakar<sup>4</sup> Mr. Lokesh N.<sup>5</sup>

<sup>1,2,3,4</sup>Student <sup>5</sup>Assistant Professor

<sup>1,2,3,4,5</sup>Department of Mechanical Engineering

<sup>1,2,3,4,5</sup>NMIT-Bangalore-64, India

**Abstract**— Presently, small land holding farmers use work bulls mostly for land preparation. Their use can be increased and made more economical by using them for other farm operations such as ploughing, harrowing, fertilizer application, sowing and weeding. Improved hand tools will also facilitate farm work. Oxen can be used to pull a cart throughout the year which keeps them in training. Ploughs, riders, seeders and weepers are all seasonal implements. Manual method of seed planting, results in low seed placement, low crop yield and serious back ache for the farmer which limits the size of field that can be planted. The cost price of imported planters has gone beyond the purchasing power of most of our farmers. Farmers can do much to increase crop production especially grains if drudgery can be reduced or totally removed from their planting operations.

**Key words:** Agriculture Vehicle, Fertilizer Spraying, Ploughs

## I. INTRODUCTION

Cultivating has experienced an awesome development in most recent 50 years. Out of the different reasons required for this advancement is control of different ailments on crops. Amid starting days there was just hand showering individuals use to do. At that point gradually there has been advancement of different strategies to shower out chemicals and cleans. In spite of the fact that these gadgets were exceedingly proficient, there is a need certain progression. Chemicals are generally utilized for controlling malady, creepy crawlies and weeds in the harvests. They can spare a product from bug assault just when connected in time. They should be connected on plants and soil as shower, clean or fog. The chemicals are exorbitant; in this manner gear for uniform and compelling application is basic. Dusters and sprayers are for the most part utilized for applying synthetic. The use of pesticide is a standout amongst the most as often as possible utilized techniques to ensure yields and trees against ailments and bugs in horticulture. In the advanced horticulture, the use of pesticides is as yet expanding, besides the 90% of these pesticides are being connected as fluid splash and for the most part by utilizing the weight picked up from coordinate vitality sources like electrical vitality and compound vitality. Expanding open worry about the potential harm of synthetic and electrical contributions to agrarian splashing frameworks has tested industry to grow new and powerful strategies for showering which will keep up condition agreeable approach.

Applying mechanical independence development in cultivation is new. In agribusiness, the open entryways for robot-enhanced benefit are enormous - and the robots are appearing on farms in changed falsifications and in growing numbers. We can expect the robots performing cultivating undertakings freely, for instance, wrinkling, seed sowing, mud closing and water showering. Watching the farms day and night for a capable report, empowering agriculturists to diminish the biological impact, increase exactness and

capability, and direct solitary plants in novel ways. The usages of instrumental mechanical innovation are spreading every day to cover help zones, as the possibility of supplanting human managers outfits convincing courses of action with quantifiable benefit. Generous chemicals or solutions holders, faecal matter or fertilizers spreaders, et cetera are practices progressively stressed by the sending of unmanned options.

## II. OBJECTIVES

The target of this paper is to show the status of the present patterns and usage of Agricultural and self-ruling frameworks and diagram the potential for future applications. Diverse uses of self-governing vehicles in horticulture have been analysed and contrasted and ordinary frameworks and are demonstrated as productive and powerful.

- To decrease human exertion in the farming field with the utilization of little robot.
- To play out each of the 5 activities at single time, thus expands creation and spares time.
- To finish substantial measure of work in less time.
- Farmer can work this robot through remote by sitting at one side and he can work effectively.
- The utilization of sun oriented can be used for Battery charging. As the Robot works in the field, the beams of the sun can be utilized for sun powered power age.

## III. METHODOLOGY

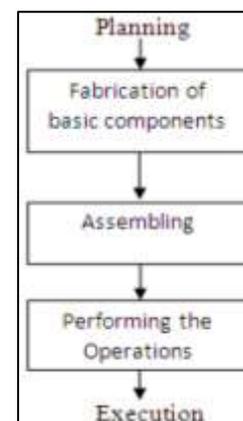


Fig. 1:

### A. Ploughing

This is the mechanism used in all the agricultural fields to maintain the fertility of land, due to forward movement of the equipment the ploughed is attached to the front of the equipment with predesigned number of teeth and teeth depth.

### B. Seed Flowing

As the equipment moves the ploughing process takes place, the chain sprocket is attached to the rolling wheel and this is directly connected to shaft which in turn connected to storage

box, the shaft has teeth which revolve due to rotary motion produced in previous attachments. Hence seeds are sowed via pipes connected which are aligned to the ploughing teeth.

#### C. Fertilizer Spraying

Spraying of fertilizer is accomplished by help of a storage tank provided with stirrer and a nozzle attached to it.

#### D. Harvesting

Harvesting is the process of gathering a ripe crop from the fields.

### IV. COMPONENTS USED

- Solar panel
- Battery – 12 volts, 1.3 Ah
- Relay switch
- DC Motors – 12 volts, 60 rpm
- Water Pump – 12 volts,
- Harvesting blade
- Wheels
- Mild steel

Block Diagram of Multipurpose Agriculture Vehicle.

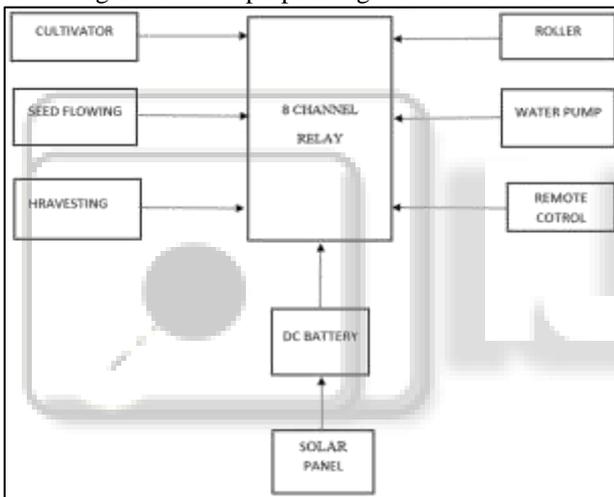


Fig. 2:

### V. DESIGN OF 3D MODELS

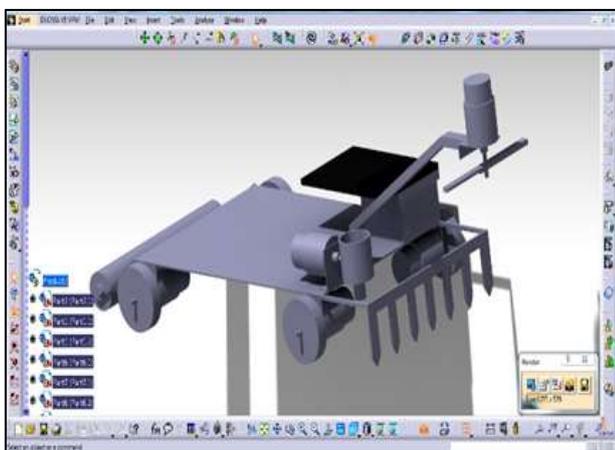


Fig. 3:

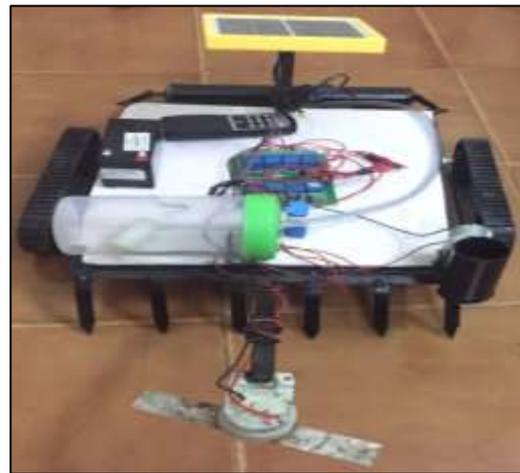


Fig. 4:

### VI. CONCLUSION

This multipurpose framework gives a propel technique to sow, furrow and cut the harvests with least labour and work making it an effective vehicle. The machine will develop the homestead by considering specific lines and particular segment at settled separation relying upon edit.

This undertaking gives a short survey of the examination on advances in rural vehicles in the course of recent years. Despite the fact that the exploration advancements are copious, there are a few deficiencies (e.g., low heartiness of adaptability and trustworthiness of innovations) that are deferring the changes required for commercialization of the direction frameworks. It can be inferred that either GPS or machine vision innovations will be „fused. Together or one of them will be „fused. With another innovation (e.g., laser radar) as the pattern advancement for agrarian vehicle direction frameworks. The utilization of new prevalent mechanical advances for farming direction frameworks will increase the acknowledgment of agrarian vehicle computerization later on.

### REFERENCE

- [1] B. Venu&B.Sagar,Solar grass cutter with linear blades by using scotches mechanism, ISSN2248.
- [2] V.Vasu, R. Joshua, Solar sprayer- an agriculture implement ISSN2079-2107, Sept 2010.
- [3] Sharma R.R, 1996, Sustainable solar thermal power generation technologies in India context published in the proceedings of international conference and renewable energy, Organized American society of mechanical Engineer, Non-conventional source.
- [4] Sidharth Kshisagar, "Design and Development of Agriculture Sprayer Vehicle", International Journal of Current Engineering and Technology, Accepted 02 March 2016, Available online 15 March 2016, Special Issue-4 (March 2016).
- [5] Mahesh R Pundkar, "A Seed-Sowing Machine: A Review", International Journal
- [6] Adithya Kavadasakar, "Review of Methods of Seed Sowing Concept of Multi-Purpose Seed Sowing Machine", International journal of pure and applied

- research in engineering and technology, 2013; Volume 1(8): 267-276.
- [7] B Mursec, "Testing of Quality of Pneumatic Seed Sowing Machine," *Journal of achievement in*
- [8] Joginder Singh, "Scope, Progress and Constraints of Farm Mechanization in India".
- [9] M.V Achuta, "Concept Design and Analysis of Multipurpose Farm Equipment".
- [10] Rahul Madhuri, *Journal of Innovative Research in Advanced Engineering (IJIRAE) ISSN: 2349-2763, Issue 02, Volume 3 (February 2016) www.ijirae.com.*
- [11] *Agricultural Engineering International: the CIGR Journal. Manuscript ATOE 07014. Vol. IX (July). 2007.*
- [12] J. A. Heraud S. Blackmore and K. Apostolidi, "The European farm of tomorrow," *Transactions of the ASABE*, vol. 18, no. 1, p. 6, 2011.
- [13] Y. Chen, X. Peng, and T. Zhang, "Application of wireless sensor networks in the field of agriculture," in *Proceedings of the ASABE Annual International Meeting*, publication no. 1110617, Louisville, Ky, USA, 2011.
- [14] Ryerson A E F, Zhang Q. Vehicle path planning for complete field coverage using genetic algorithms and A. F. Lange, "Agricultural automatic vehicle guidance from horses to GPS: how we got here, and where we are going," in *Proceedings of the Agricultural Equipment Technology Conference*, vol. 33, ASABE publication no. 913C0109, pp. 1–67, Louisville, Ky, USA, 2009.
- [15] T. Bakker, K. Asselt, J. Bontsema, J. Müller, and G. Straten, "Systematic design of an autonomous platform for robotic weeding," *Journal of Terr mechanics*, vol. 47, no. 2, pp. 63.73, 2010. View at Publisher.