

# Agricultural Robotic Pesticides and Germicides Sprinkler

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**Abstract:** Agricultural machinery is machinery used in farming or other agriculture. Mechanized agriculture is a process of using agricultural machinery to mechanize the work of agriculture, greatly increasing farm worker productivity. In modern times, powered machinery has replaced many farm jobs formerly carried out by manual labor or by working animals such as oxen, horses, and mules. The entire history of agriculture contains many examples of the use of tools, such as the hoe and the plough. But the on-going integration of machines since the Industrial Revolution has allowed farming to become much less labor-intensive. The biggest profit of automation is that it saves the labor. However, it also saves energy and materials and to improve the quality, accuracy, and precision.

Advance Multipurpose Agricultural Machine is the machine used for advance farming nowadays. This machine helps the farmers to increase their efficiency by doing the work like sprinkling, cutting, seed sowing etc. in some years this robot can take place of the farmer and will do the drastic revolution in future.

Many of the companies from U.S., U.K. and Germany are working on this technology by using renewable energy sources like solar energy. But there is no standard dimension of farms this is why the companies are facing many problems for building this

We are trying to make a prototype of Advance Multipurpose Agricultural Machine as per farmer's requirement to make their hard work easy and fast and help them to make profit.

## INTRODUCTION

### Introduction:-

Agriculture is the backbone of India. Paddy and Wheat is one of the new targets in agriculture where still, not many researchers and manufacturers participate. This field faces some problems such as how to maximize the profit, how to increase productivity and how to reduce the cost. In India, two types of agricultural equipment are used, manual method (conventional method) and mechanized type. Mechanization involves the use of a hybrid device between the power source and the work. This hybrid device usually transfers motion, such as rotary to linear, or provides ample of mechanical advantages such as increase or decrease or leverage of velocity.

The design of multipurpose agro equipment machine will help Indian farmers in rural side and small farm. It will reduce the cost of seed feeding, pesticides sprinkling and crop cutting the field and will help to increase economic standard of an Indian Farmer.

Present scenario in agricultural field in India related to sprayer is that farmers are using hand operated sprayer on motorized sprayer. According to idea in our project we are making a small rover or machine which is electronically operated by a wireless remote which runs on power source as a DC battery.

One vertical pipe is attached on the front of the rover containing a nozzle on it so it can spray pesticides on both the sides. As more no of nozzles are there hence spraying is done rapidly and time and money is saved

Insects are largely responsible for the crop destruction insects or pesticides, a man made natural preparation are used to kill insects or otherwise control their reproduction these herbicide, pesticides, and fertilizers are applied to agricultural crops with the help of a special device known as "Sprayer". Sprayer provides optimum performance with minimum effort. The invention of a sprayer, pesticide, fertilizers bring revolution in the agricultural or horticulture sector especially by the invention of sprayers by the invention of sprayers, enable farmers to obtain maximum agriculture output. They are used garden spraying, weed and pest control, liquid fertilizing and plant leaf polishing

Renewable energy is generally defined as energy that comes from long lasting resources. The most abundant & unlimited source of energy. As follow energy is one of the most important non- conventional sources of energy. This energy is environmental friendly, which is mainly free from pollution. Solar energy get from the sun is harvested on the solar panel the panel is made up of photovoltaic cells, which converts energy from photon to electric. And these cells are made up of silicon semiconductor. And the battery charged by is used in to operate DC pump for spraying the pesticides.

A pesticide sprayer has to be portable and with an increased tank capacity as well as should result in cost reduction, labor and spraying time. In order to reduce this problem, there are no of sprayers introduced in the market but this device do not meet the above problems or demands of the farmers. The conventional sprayer having the difficulties such as it needs lot of efforts to push the livers up and down in order to create the pressure to spray.

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## SCOPE OF THE PROJECT

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By the testing and survey we found that the machine we made is able to help the farmer to its everyday work and also save its money being coasted for heavy machineries. This is our prototype model but it is capable to do the job and this can be making a new market in agricultural equipment field.

After some modification as per customer's requirement the product is able to sell in market and also buyers will widely get satisfied by it. Because of its moderate rate as compared to the other machineries farmers re easily able to buy it at low cost and also it is helpful for small land or farm fields and nurseries.

Because of its light weight it is easy to transport from one place to another and also because of its durable chassis and equipment life of the product is increases also because of less vibrations and less moving parts the maintenance gets less and cost of the maintenance gets less.

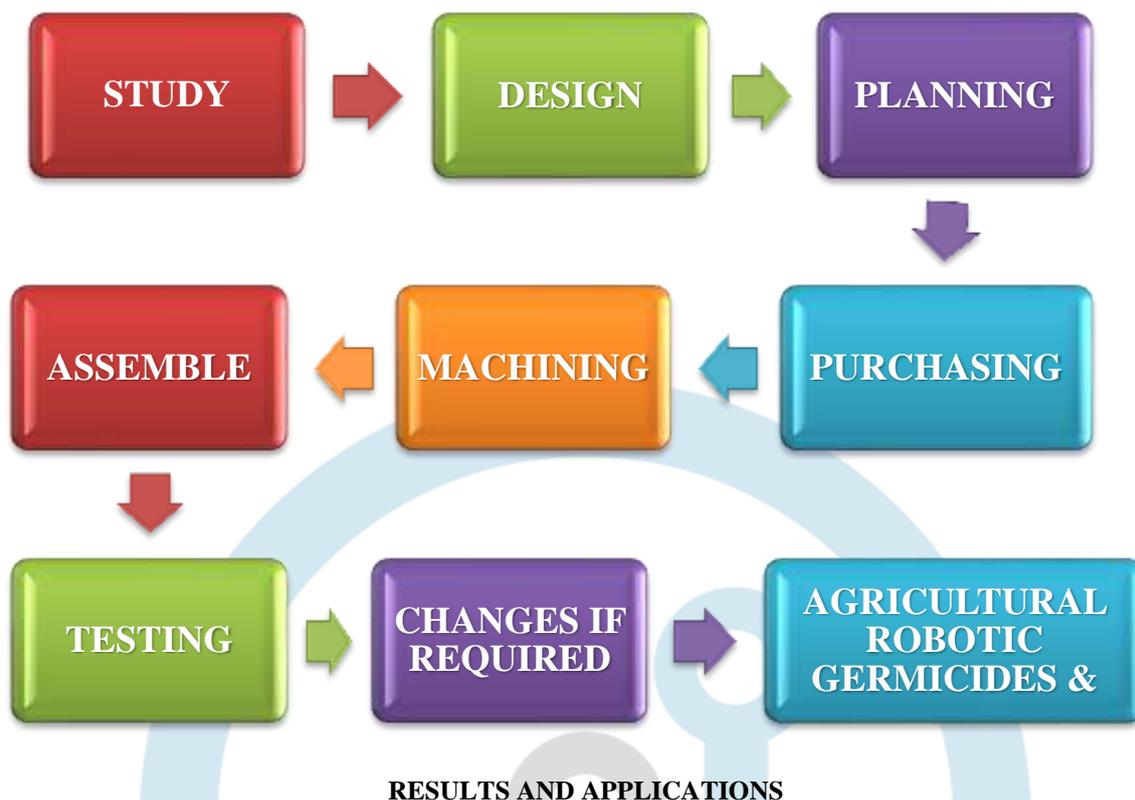
## METHODOLOGY

### Methodology:-

Methodology of our project contains following steps followed by us and because of these followed steps we are able to reach the final result of the project.

### Methodological Steps Followed by us :-

- 1) Make the design of whole structure on paper or draw it on AutoCAD.
- 2) Collecting all the information about the parts required for making advance multipurpose agricultural machine (with their prices).
- 3) Buying some products which are not getting here with the help of online website.
- 4) After getting all accessories we start to build the base structure.
- 5) Then we place the all servo motor and track at their place.
- 6) Creating support for the base and track
- 7) Get the trail of prototype.
- 8) Assemble the equipment for farming and circuits.
- 9) Get the trail with all the farming equipment and loads
- 10) Do the changes if required
- 11) Assemble all parts together again after changes.
- 12) Taking a trial of machine again.
- 13) Use the rover in field or farm.

**Results:-**

We build the rover as per requirement of the farmer from analyzing the size of crops and size of fields also distance between two crop lines, this machine is user friendly and easily adoptable to learn the control.

The built up cost is less as compared to other agricultural equipment also maintenance is less because of less vibrations and less moving components.

**Application:-**

- It can used for the vegetables and fruits which are at some height from ground.
- We are able to use this at small fields and in small distance between two crops.
- Germicides and pesticides or other fertilizers can also be sprinkle.

**Advantages:-**

- User-friendly access
- Economically affordable
- Able to operate in small fields and farms where gap between two crops is less
- Will be best product for grapes and oranges farms also for vegetables
- Regenerative solar energy supports it for battery charging both in idle and working condition.
- Long operating life
- Maintenance is less because of less moving parts and less vibrations

**CONCLUSION AND FUTURE SCOPE****Conclusion:-**

This project helps us to reduce the efforts of farmer and gives them maximum efficiency. Also this project is affordable so every farmer can easily buy it.

**Future Scope:-**

- Machine is capable of sprinkling seed sowing & Weed Removing so this can take place of farmer and make their work easy.
- Product can be used for daily use of the farmer.
- Used for variety of crops so it is all season machine.

- Fast work and smart work both are in this machine.



**Built-up Cost for the project: - INR 18500/-**

### ACKNOWLEDGEMENT

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