

Drone Sprayer: An Unmanned Aerial Vehicle Equipped with a Spraying System

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Abstract: *Conventional methods of pesticide application can have several negative effects on human health. Immediate health effects from pesticide exposure include irritation of the nose, throat, and skin causing burning, stinging and itching as well as rashes and blisters. Nausea, dizziness and diarrhea are also common. Suspected chronic effects from exposure to certain pesticides include birth defects, toxicity to a fetus, production of benign or malignant tumors, genetic changes, blood disorders, nerve disorders, endocrine disruption, and reproduction effects. It is important to consider these potential health risks when using conventional methods of spraying pesticides. It is a serious public health issue. Therefore, we came up with an idea and successfully developed a Drone Sprayer, which can be a good solution for human health.*

Keywords: Drone Sprayer.

I. INTRODUCTION

By utilizing unmanned aerial vehicles (UAVs) to effectively administer pesticides, fertilizers, and other chemicals to crops, drone sprayers transform conventional agricultural methods. These cutting-edge tools solve major issues in contemporary agriculture by providing speed and precision.

Drone sprayers raise the bar for precision agriculture with their unique spraying systems. With precise chemical dosages, they enable farmers to target particular locations, maximizing resource efficiency and reducing environmental effect. Drone sprayers are an invaluable tool for time-sensitive tasks like treating crops at important growth stages. Their efficiency is especially demonstrated by their capacity to cover large fields in a fraction of the time required by traditional ground-based approaches.

Drone sprayers' usefulness is not limited to agriculture; they can also be used in forestry, environmental monitoring,

II. METHODOLOGY

1) Describe the Conditions:

- Identify the function of the drone sprayer (e.g., agriculture, pest control, etc.)
- Ascertain the spraying efficiency, coverage area, and payload capacity.
- Think about the crops or locations you plan to spray.

2) Choose Your Components:

- Select a drone frame that meets the necessary requirements for payload capacity.
- Choose electronic speed controllers (ESCs), propellers, and motors of the highest caliber
- Select a dependable flight controller that has GPS functionality.
- Select a power source, which is typically a lithium-polymer battery with a large capacity.

3) Spraying Mechanism:

- Depending on the use of the spray mechanism (such as pumps or nozzles), select on
- Create a system of tanks to keep the liquid (fertilizers, insecticides, etc.).
- Put in place a dependable and effective pumping system.

4) Programming Flight Controllers

- Configure the flight controller to use GPS waypoints to enable autonomous flight.
- Incorporate sensors (like LiDAR or ultrasonic) for

III. LITERATURE REVIEW

Drones are being actively promoted by the Indian federal government for agriculture spraying. Research has been conducted on the design and development of drones for spraying pesticides, fertilizers, and disinfectants, with the aim of reducing the harmful side effects of manual pesticide spraying. Technical reports have also been published on the implementation of agriculture drones for automatic spraying mechanisms as part of smart agriculture initiatives.

IV. RESULTS AND DISCUSSION

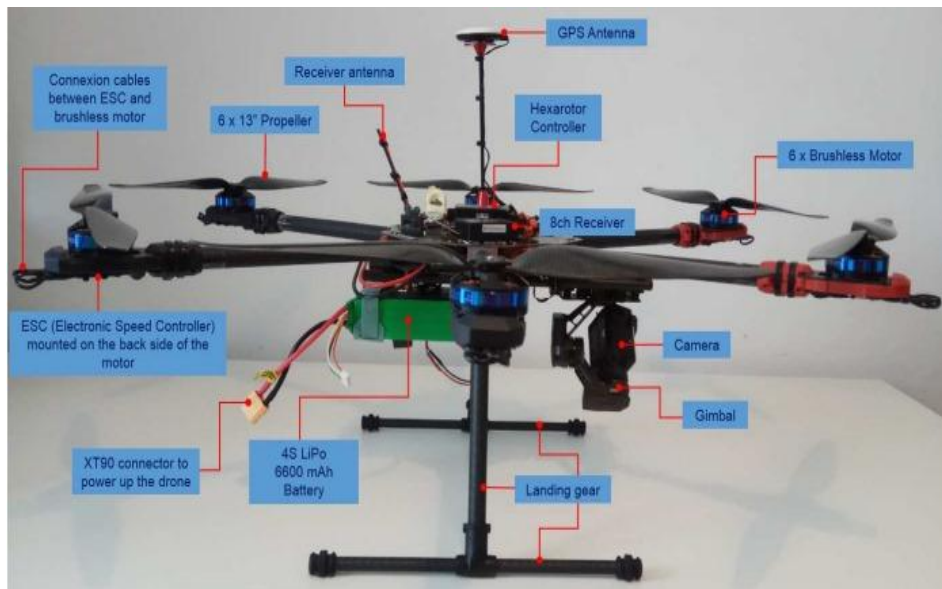
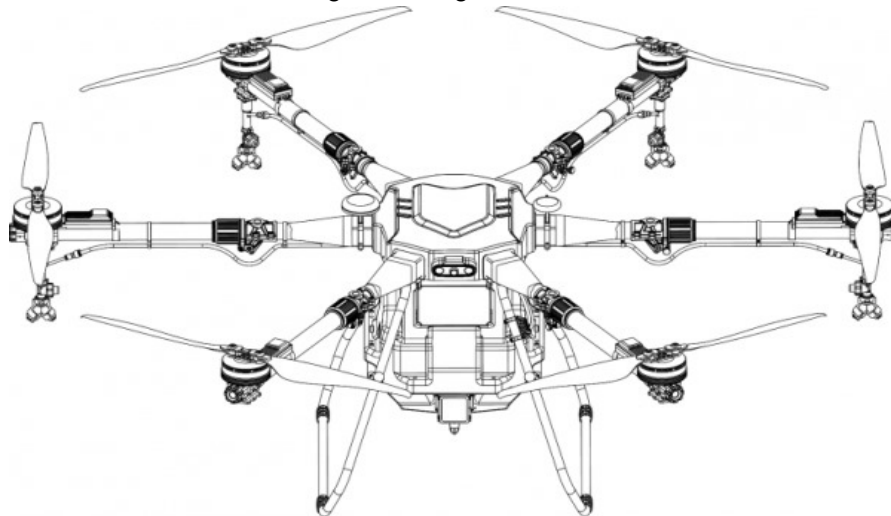


Fig. 1. Working of ChatGPT



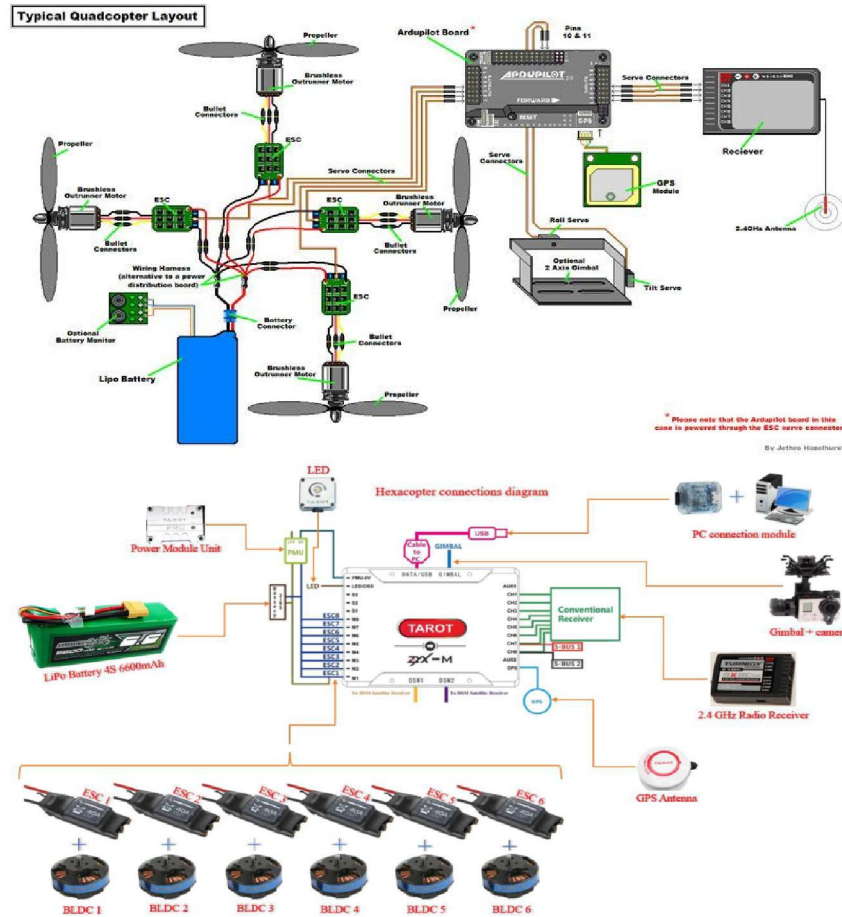


Fig. 2. Frontend of ChatGPT

V. CONCLUSION

Drone sprayers offer a more effective, accurate, and ecologically friendly method of crop spraying, which has the potential to completely transform the agriculture sector. But in order to fully incorporate them into conventional agriculture, technological obstacles must be overcome and precise legal frameworks must be put in place. Keep in mind that advancements may have occurred since my last update, so it's advisable to examine the latest sources for the most recent information on drone sprayers.

VI. ACKNOWLEDGEMENTS

We would like to use this opportunity to sincerely thank everyone who helped with the development and application of the drone sprayer technology. The fields of agriculture and pest management have benefited greatly from and advanced thanks to this creative idea.

A special thank you to the hardworking group of specialists, researchers, and engineers that designed, tested, and improved the drone spraying system. Their innovative approach and unwavering dedication to quality have produced state-of-the-art technology that has the potential to completely transform farming methods.

REFERENCES/APPENDICES

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