Review of: "Modelling of Quadcopter for Precision Agriculture and Surveillance Purposes"

Stala Zouaoui[1]

1 Centre Universitaire Tissemsilt

Potential competing interests: No potential competing interests to declare.

Reviewing Report

The present work proposes “Neuro-Fuzzy-Based Adaptive Control for Autonomous Drone Flight”.

Summary: The article discusses the modeling and simulation of a quadcopter for precision crop spraying in agriculture. It covers the current state of precision crop spraying, the challenges and opportunities of using UAVs, and the benefits of precision agriculture. The paper also presents the equations, simulation process, and results of the quadcopter's stability and performance. It concludes with the need for further improvements and provides references for additional reading.

1. What are the challenges and opportunities associated with using UAVs for precision crop spraying?

2. How was the quadcopter modeled and simulated in this research paper?

3. What were the results and discussion regarding the stability and performance of the quadcopter during testing?

4. Certainly! Here are some questions about the article "Modeling and Simulation of a Quadcopter for Precision Crop Spraying in Agriculture":

5. How does the article address the current state of precision crop spraying and the challenges and opportunities associated with using UAVs for this purpose?

6. What are the key aspects of the modeling and simulation process of the quadcopter discussed in the article? How does the use of MATLAB contribute to the simulation and computer modeling?

7. What are the practical insights provided in the results and discussion section regarding the quadcopter's stability, performance, and potential issues encountered during testing?

8. How does the article showcase the practical integration of technology for precision agricultural operations, particularly in the development of a quadcopter with an integrated fertilizer application unit and camera system?

9. What are the dimensions and specifications of the quadcopter developed for precision crop spraying, and how were its stability and lift-off addressed in the article?

10. How does the article contribute to the understanding of the challenges and advancements in the development of

quadcopters for precision crop spraying, and how does it serve as a valuable resource for researchers and practitioners in the field of precision agriculture and drone technology?

11. What are the potential future research directions or improvements mentioned in the article to enhance the efficiency and stability of the quadcopter for precision crop spraying?

12. Since the topic discusses quadrotor drones and control and a new method of study of this type of UAV, I recommend some recent publications to add quality to this important research:

a. Zouaoui, S., Mohamed, E., Kouider, B. (2019) “Easy Tracking of UAV Using PID Controller”, Periodica Polytechnica Transportation Engineering, 47(3), pp. 171–177. https://doi.org/10.3311/PPtr.10838
b. SATLA, Z., ELAJRAMI, M., BENDINE, K., SALAH, M., POLAT, A. P, PI, PID controller designed for UAV Quadrotors trajectory. In: International Conference on Innovative Engineering Applications: proceedings. 2018. https://www.researchgate.net/publication/327920172_P_PI_PID_controller_designed_for_UAV_Quadrotors_trajectory
c. Elajrami, M., Satla, Z., & Bendine, K. (2021). Drone Control using the Coupling of the PID Controller and Genetic Algorithm. Communications - Scientific Letters of the University of Zilina, 23(3), C75-82. doi: 10.26552/com.C.2021.3.C75-C82 .
d. Satla, Z. & Encadreur Elajrami, M. (2019). « Contribution À La Modélisation Et À La Commande D'un Drone Miniature » [Thèse de Doctorat, Université Djillali Liabès - Sidi Bel Abbés].

https://www.theses-algerie.com/2519265048435545/these-de-doctorat/universite-djillali-liabes---sidi-bel-abbes/contribution-%C3%A0-la-mod%C3%A9lisation-et-%C3%A0-la-commande-d-un-drone-miniature.

13. Add two tables, first for physics and mechanical parameters of drone, and second for PID parameters (kp, ki, and kd) for each coordinate of drone.

14. In figure 09, why did you put velocity (zdot) with x and y coordinates? You are supposed to provide the dates x, y, and z and speeds separately.

15. There is no relationship regarding the study and Figure 10. This means that you did not conduct a study on the structure or optimization of the drone shapes.

In general, the work is very limited and does not match the title of the research. The work may have scientific importance because it provides new elements in the field of research. Therefore, it should be revised, and its quality improved.