Dogfighter UAV Design

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Abstract

Abstract In this paper, an autonomous UAV system to perform dogfight is introduced including aerodynamic, mechanical, and electronical subsystems, and software pipeline. First of all, an aircraft that can perform airborne maneuvers for the dogfight mission is designed and the components for the communication system are determined. Then, a new hybrid airborne UAV tracking method is proposed for visual navigation, with an agile control system that enables autonomous dogfight abilities.

Keywords:
fixed-wing UAV Design; target optimization; autonomous dogfight; UAV tracking; visual guidance
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1. Introduction

The basic mission description of the Astrotech UAV system is selecting a target by analyzing data from rival UAVs moving in the air, performing an appropriate approach to the target UAV to obtain visual contact, and pursuing the rival UAV with the help of the guidance algorithm.

2. Experimental/Methodology/Design

The methods section describes the steps followed in the execution of the study and also provides a brief justification for the research methods used. A chronological explanation of the research, including research design, research procedures (in the form of algorithms, codes, or others), how the procedures are to obtain and test data [**?**] - [**?**]. The description of the research has been supported by references, so that the implementation can be accepted scientifically [6]. Figure are presented in the center, as shown below and are cited in the manuscript. An example of a membership function graph can be seen in Figure **??**.

2.1. System Design

2.1.1. Mechanical Design & Performance

2.1.2. Electronics Design

2.2. System Software & Algorithms

2.2.1. Targeting Optimization

2.2.2. Control

2.2.3. Image Processing

Each image (photos, graphs, and diagrams) in the article must be accompanied by a caption/image title and sequential image numbers, written below the image in the middle position. Images must be directly relevant to the article and are always referenced in the article referred to as Figur **??**, where the capital letters are capitalized.

3. Result and Discussion

4. Conclusion

5. Acknowledgement (if any)

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