

ABSTRACT

The master's dissertation consists of an introduction, five chapters, conclusions, and a list of references. Additionally, this diploma contains 112 pages, including 51 figures, 28 tables and 31 sources.

The relevance of the topic lies in the development of an automated system for controlling unmanned aerial vehicles (UAVs) with a first-person view (FPV) observation system, possessing unique design parameters. This is highly relevant in the present time and can be designated for both military-industrial complexes and civilian operational purposes. In his address on August 31, 2023, at a session of the university's faculty, the rector of Igor Sikorsky Kyiv Polytechnic Institute (KPI), Academician of the National Academy of Sciences of Ukraine M.Z. Zgurovsky, stated verbatim: "New realities have compelled us to add another important task to the development strategy of KPI: enhancing the country's defense capabilities". The key aspects of the relevance of this topic include the need for new weapon models to defend the state against enemies, especially after the onset of full-scale invasion into the territory of Ukraine in 2022.

The objective of the work is to develop a system capable of adjusting the movement of a drone in conditions of radio interference and to create wing models with unique design parameters.

The research object involves the design of a drone and the development of a control system for it, capable of adjusting the trajectory of the vehicle's movement. Additionally, the research encompasses the creation of a model of an unmanned aerial vehicle with proposed design parameters. This implies that the shape and characteristics of the wing will be optimized to achieve specific goals, such as increasing efficiency, reducing air resistance, or enhancing stability in conditions of radio interference.

The research subject is the automated control system of a first-person view model of an aviation drone.

Methods of research include the utilization of software tools such as SolidWorks and AutoCAD as primary instruments. In these environments, it is possible to design three-dimensional models and perform the necessary calculations.

Scientific novelty is achieved through the development of both individual modules and a complete structure, based on computer modeling and analytical calculations. These developments align with the technical specifications, demonstrating innovation in the approach and design of the unmanned aerial vehicle system.

Keywords: automation, drone, UAV (unmanned aerial vehicle), flight, control system, fuselage, wing.