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MATHEMATICAL FORMULATION OF PROBLEM ON OPTIMIZATION OF MOTION OF GROUP OF QUADROROTOR HELICOPTERS

This paper describes the development of a mathematical formulation of the problem in control of a group of quadrotor helicopters as an integral dynamic system. The study examines the problems of mathematical modeling the quadrotor helicopter movement. The problem for optimizing the trajectory of a group of quadrotor helicopters is resolved. It results from search of the optimal control and mechanical trajectories of quadrotor helicopters on paths of the branching trajectory. A novel approach to the formulation of this problem is applied using the branching trajectories method. The practical significance of this work is in the development of robotic systems designed for missions of operational reconnaissance in the zone of an emergency and the use of a group of quadrotor helicopters for operative mapping territories with dynamically changing situations.

Keywords: *dynamic composed system, optimization, control, mathematical model.*

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