Unmanned gliding aircraft formation flying

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The article is concerned with working out the crucial task of the formation flying of the unmanned gliding aircraft with the wing-mounted module. The problem considered has a lot of practical applications and increases the opportunities of the previously set out priorities. The distinctive feature of this type of aircraft is the lack of the power-unit, which imposes severe restrictions on the available energy reserves. We suggest an algorithm for flying in formation. The essential element of the algorithm developed is the procedure of setting up the ensemble of supporting navigational guide-points for each unmanned gliding aircraft in the group. The restrictions on the initial energy reserve on the left end of the trajectories as well as the accuracy requirements on the right end are taken into account. The article describes the method of path generation using the navigational guide-points and forms an algorithm for terrain avoidance during the formation flying. We look at the simulation results demonstrating the use of the algorithms for the formation of unmanned gliding aircraft flying of a particular aerodynamic configuration.

Keywords: *unmanned aircraft, gliding aircraft, aircraft with the wing-mounted module, algorithm for flying in formation, initial energy reserve, accuracy requirements, path generation, aerodynamic configuration*

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