

An Approach in the Optimization of the Flight Time of a Swarm Quadcopter System Using Fuzzy Logic

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ABSTRACT

This work is an approach to optimize the small flight time of each member of a swarm of unmanned aerial vehicles. As a swarm moves towards a mission, each unit receives varied workload which in turn widens the difference of each power supply. The code to be used is to limit each unit's time in high workload, to give way to those swarm members who have significantly higher power remaining for the job. Each unit, after a set duration of time, will undergo a decision making method to compare its overall status with the surrounding members. Parameters to be considered are chosen based on the set formation to be used, as well as other limiting factors. Experimental results are presented through simulation.

KEYWORDS: Swarm; Fuzzy Logic; Optimization; Power Management; Cooperation