

Path Planning for Unmanned Aerial Vehicle (UAV) using Rotated Accelerated Method in Static Outdoor Environment

ABSTRACT

Generating path planning for unmanned aerial vehicles (UAV) is important to provide a smooth navigation flight path from source to destination. In the past, fast iterative methods that apply the use of full-sweep iteration were suggested. In this study, a fast iterative method known as Rotated Successive Over-Relaxation (RSOR) is introduced. The algorithm is implemented in a self-developed 2D Java tool, UAV Planner. The proposed method was tested using several simulation scenarios which demonstrated the efficiency of the algorithm by finding the path in term of smoothness, computational time efficiency and number of iterations, with a different number of outdoor static obstacles in the form of hills. The results show that RSOR gives a faster computational time and less iterations to generate a path for UAV platform when compared to previous methods.