

Development and analysis of 2d flight planning search engine considering fusion of swim data

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20513042&lokasi=lokal>

Abstrak

Flight planning is one of the essential factors of the airline operation. The selection of routes will determine the economic value of the flight. However, some conditions may prevent the flight to use the most optimum route due to airspace restriction or weather condition. The research aims to develop a search engine program that uses dynamic flight parameters that considers fusion of System Wide Information Management (SWIM) data including weather data and NOTAM to produce the most optimum route in 2D flight planning. The Dijkstra's pathfinding is implemented in Python programming language to produce the flight plan. The navigation data used is enroute airway in Indonesian FIR regions. The scenario used is a flight from Jakarta to Makassar with duration of 2 hours flight with considering the effect of restricted airspace and weather blockage during in-flight. The study also uses the optimum route produced by the algorithm to be compared with the possible alternate routes to define how optimum the route is. Adding a restricted airspace parameter will result in a new optimum flight plan that able avoids the airspace and the most minimum distance. The effect of external wind parameter could influence the optimum route which may vary depends on the speed of the wind.