

A Heuristic Approach to Solve Air Taxi Scheduling Problem

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(Abstract)

All passengers travel at the hour most convenient to them. But it is not always possible to find a flight at the right time to fly them to their destination. In the case where service in any one time period is insufficient to meet air travel demanded, it may be expected that some unfilled demand passengers will either delay their flight or will advance it, thus adding to the effective demand of the adjoining time periods.

The obvious alternate means of travel is a rental car. It takes a lot more time than flight, but it is readily available at any given time. This brings us to think of an airline system that will work in a similar fashion; A system that can be named an "Air Taxi System." This would mean a virtual highway in air space leading to a vast network. The network would be served by small aircraft flying from one city to another. Such a large network having dynamic demand will have many issues to resolve before successfully launching a Small Aircraft Transportation System. One of the most important problems to solve is scheduling of aircraft for such a stochastic demand flow.

The objective of the research is to study a given set of airports with dynamic demand and known aircraft type. The major task will be to analyze the flow of passengers between each origin-destination pair and then schedule flights. The research will be to develop a schedule for a fixed set of airports with dynamic demand and known type of aircraft. The main objective is to maximize demand satisfaction. The study will also analyze the number of aircraft required for a given set of airports and find a method to schedule them.

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