

# **Nonlinear Mathematical Solution For Quadratic Assignment Problem: Real-World Application of Turkish Airforce Academy's Master Plan**

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## **Abstract**

Time is a valuable good in present days, that is why organizations pay great attention to locating and designing accommodations as efficient as possible. The locating of these accommodations can bring several challenges. Variable flows have to be taken into account. This is why Turkish Air Force Academy gave priority to the distances between the accommodations and took the flow of people/personnel very serious when designing their base within the references of the masterplan. There are several problems described in the literature retrieved from the Quadratic Assignment Problem (QAP). The masterplan's main objective is to anticipate and find solutions to these problems. Just focusing on the plain design of the accommodations is not sufficient. To really find a solution for the accommodating problems there had to be made use of a mathematical model. The masterplan along with the outcomes from the model discussed in this paper.

## **Keywords**

Facility Layout Design , Nonlinear Mathematical Model, Quadratic Assignment Problem

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