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ACCESSING ANALYSIS OF PASSENGERS COVERED BY PAYMENT KIOSKS: A CASE FOR THE GAZIANTEP PUBLIC TRANSPORTATION SYSTEM

Abstract:

Recently, the use of public transport has become widespread with the increasing population. This brings with it many problems. Since the points of payment kiosks are not regularly distributed where the population is concentrated, the most important problem is accessing to these kiosks. The problem in Gaziantep, Turkey is considered in this study. 177 different locations which have densest population are considered as demand points and 379 payment kiosks are considered as source points. The goal of this study is to maximize the rate of passengers (demand points) who try to access to the payment kiosks. To do so, different location-allocation analysis such as set covering, p-median and p-center modes are applied using optimization package programs and geographic information systems. As a result, coverage rate is increased by changing the places of kiosks and the required number of kiosks is determined to satisfy all demand.

Keywords:

Set covering problem, geographic information system, public transportation, mathematical model, case study.

JEL Classification: C61, L92