Optimal Location of the I/O Point in the Parking System

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Abstract : In this paper, we deal with the optimal I/O point location in an automated parking system. In this system, the S/R machine (storage and retrieve machine) travels independently in vertical and horizontal directions. Based on the characteristics of the parking system and the basic principle of AS/RS system (Automated Storage and Retrieval System), we obtain the continuous model in units of time. For the single command cycle using the randomized storage policy, we calculate the probability density function for the system travel time and thus we develop the travel time model. And we confirm that the travel time model shows a good performance by comparing with discrete case. Finally in this part, we establish the optimal model by minimizing the expected travel time model and it is shown that the optimal location of the I/O point is located at the middle of the left-hand above corner.
Keywords : parking system, optimal location, response time, S/R machine
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